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Recognition and Separation of chiral molecules using Chiral Fluorescent Coordination Cages.

Chirality, a universal phenomenon, is an intrinsic part of human life. Many major and essential components of a living body including amino acids, sugars, polysaccharides, proteins, and nucleic acids are fundamentally made up of optically active components. It is a well-established fact that the separation of these enantiomers is quite difficult owing to their similar physical and chemical properties in an achiral environment. However, as these enantiomers exhibit different biological and pharmacological activities, their separation still remains to be of great importance to the pharmaceutical industry, food industry, agrochemical industry, fragrances, flavours, etc. Owing to the high surface area, well-defined pore structure, and tuneable pore size, porous materials like coordination cages and polymers are promising candidates in the separation of chiral molecules. The Turner group at Monash University has been involved in developing new synthetic routes to enantiopure coordination polymers and cage complexes. These supramolecular systems are the harmonious result of serendipity and rational design. With chirality induced by the amino acid groups, a range of compounds with varying dimensions, sizes, and geometry can be synthesized with a variety of potential fluorescent cores. Explicitly focussing on diphthalimide-derived ligands with fluorescent cores, the properties of the resulting cages can be altered by changing the length and other properties of the core, the amino acids, and the metal involved.

This presentation illustrates the basis behind the design of these predicted cages and their fluorescent studies.

Level of Expertise

Student

Presenter Gender

Woman

Pronouns

She/Her

Do you intend to attend UM2022

In person - Melbourne

Students Only - if available would you be interested in student travel funding

No

Students Only –Do you wish to take part in the Student Poster Slam

No

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Yes

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