Project 2.2 Precisely Engineered Multichromophore Systems for Advanced Optoelectronic Applications

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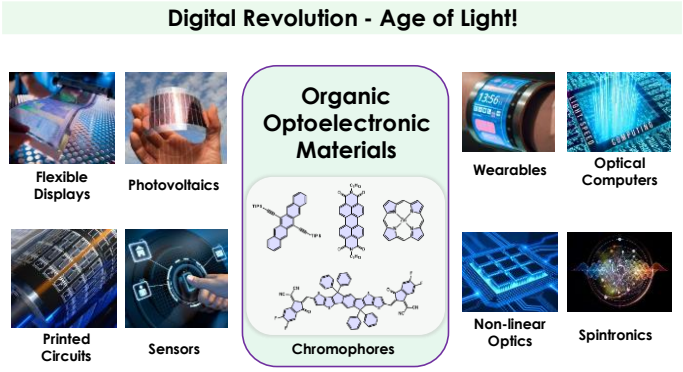
Background:

This project addresses the urgent need for advanced photonic materials, pivotal to tackling energy and data transmission challenges in the digital era. Current optoelectronic technologies harness only a fraction of their potential, highlighting the necessity of novel molecular systems for efficient light manipulation. A key focus is on circularly polarized light (CPL), a cornerstone for applications in advanced displays, optical sensing, and quantum information. By developing multichromophoric systems with controlled chiral arrangements, this research aims to unlock enhanced CPL emission and sensitivity, enabling breakthroughs in energy-efficient devices and next-generation photonic technologies.



Aim:

The PhD project aims to synthesize, and analyze novel multichromophore systems with precise spatial arrangements to advance optoelectronic applications. A central focus is on developing chiral structures optimized for circularly polarized light (CPL) emission, which is critical for cutting-edge technologies such as advanced displays, 3D imaging, and optical sensors. By tailoring molecular geometry and studying the relationship between structure and photonic properties, the project seeks to enhance CPL efficiency and stability.

Requirements:

- Master's degree in chemistry or a related field;
- experience in organic synthesis or a closely related area;
- proficiency in analyzing and interpreting experimental data using techniques such as NMR, MS, and UV/Vis spectroscopy;
- prior research experience, particularly in experimental work, is advantageous;
- strong written and verbal communication skills in English.