

Minisymposium/Séminaires

Vendredi 3 mai 2024 à 9h30
Amphithéâtre Henri Benoît

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Chirality transmission between objects having large size range

Chirality can be transmitted between various media and size scales, from spinning elementary particles or chiral molecules to mesoscopic and macroscopic structures through electromagnetic fields or emergent spin structures. The transmission mechanism of chirality information through electrons, photons, and phonons, and in the intra- intermolecular or sterical interaction is extremely complex and never ceases to fascinate scientists. For several decades, based on the molecular assembly, we have developed helical nanostructures with controlled sizes of the order of 10-100 nm and handedness, which have shown very promising properties not only as fundamentally interesting shaped objects with intriguing properties but also as helical platforms transferring the chiral information between very small to large objects and vice-versa, from electrons, atoms, molecules or large polymers and even nanoparticles. Through such interaction, we have shown exciting examples of their use in chiral induction, amplification, crystallization, reaction, and chiral recognition.

Damien Baigl

ENS Paris

Synthetic self-assembly with life-like properties

Self-assembly is both an advantageously spontaneous process to organize molecular or colloidal entities into functional superstructures and a key-feature of how life builds its components. However, compared to their living counterparts, synthetic materials made by self-assembly usually lack some of the interesting properties of living systems such as multicomponent character or capability to adapt, transform and evolve. In this presentation, I will describe different systems where life-like properties can emerge from self-assembled synthetic materials. I will first show that user-defined and elaborate nanostructures can be obtained by the isothermal self-assembly of hundreds of different DNA bricks and proteins with a unique capability to self-organize, grow, optimize, adapt and evolve. At a micro- to macroscopic scale, I will describe self-assembled colloidal crystals evidencing other interesting life-like properties, such as dissipative organization or living crystallization.

Venez au séminaire si vous voulez rencontrer les orateurs.