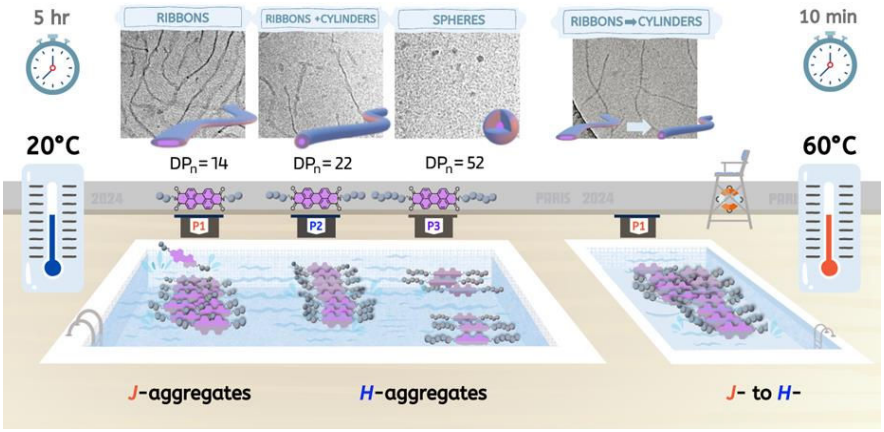
Institut Parisien de Chimie Moléculaire, Polymer Chemistry Team, SU & CNRS, PARIS
Doctoral School of Physics & Chemistry of Materials ED-397

Stimuli-Responsive Polymer Assemblies: Engineering Optical Properties Through Supramolecular Design

KEYWORDS: supramolecular assemblies, stimuli-responsive polymers, pi-conjugated assemblies, nanocylinders, nanoribbons

This PhD project focuses on the design and development of novel, stimuli-responsive macromolecular assemblies with tunable optical/electronic properties. By exploiting supramolecular interactions and incorporating π-conjugated cores as structure-directing units, the project aims to create self-assembled nanostructures in water. These assemblies will be engineered to respond to external stimuli, such as light, temperature, or pH, enabling precise control over their morphology and optical behaviour. Building on previous work in the group [*Berruée et al., Angew. Chem 2024*, https://doi.org/10.1002/anie.202413627] that demonstrated the spontaneous formation of nanoribbons, nanocylinders, and spheres through Reversible Addition−Fragmentation chain-Transfer (RAFT) polymerization, this PhD project will build on innovative strategies for creating functional materials with potential applications in sensors and optoelectronics.



REQUIRED PROFILE :

- Master's degree in Chemistry, with a strong expertise in synthetic organic chemistry.
- Knowledge of polymer synthesis, self-assembly and supramolecular chemistry
- Familiarity with characterization techniques such as: NMR, UV/Vis spectroscopy, Cryo-TEM, SAXS (Small-Angle X-ray Scattering), Dynamic Light Scattering (DLS)
- Strong analytical, research skills and critical thinking
- Ability to work in an interdisciplinary, multicultural team

For more information and application procedure: https://bit.ly/3QyVFDC

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