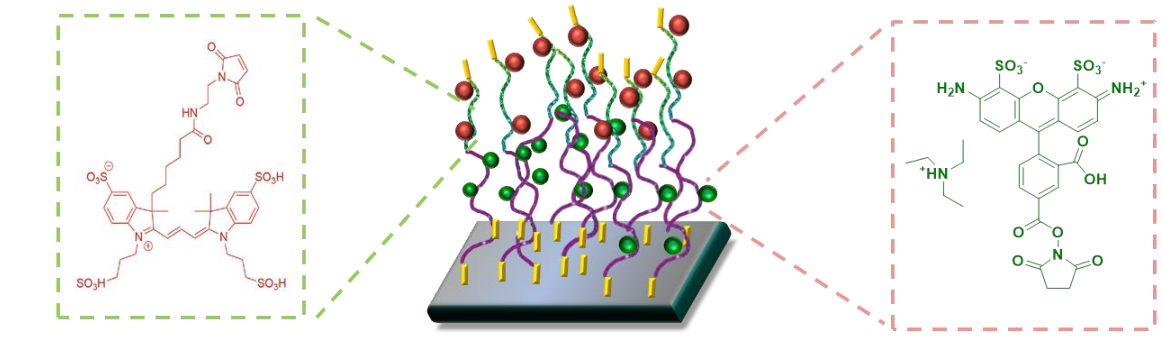
Title: Salt-induced crystallisation in FRET-tagged polymer brushes.

Abstract

Polymer brushes are nanoscopic surface coatings that respond to specific chemical, thermal, and electrical triggers by changing their conformation, making them smart materials. Herein, we aim to synthesise various polymer brushes using the grafting-from method with SI-PET-RAFT polymerisation and assemble fluorescent motifs within.[1] Several brush surfaces with varying heights will be prepared. Characterising methods such as ellipsometer, contact angle, and plate reader will be extensively used to measure height, wettability, and fluorescence of the prepared surfaces. After obtaining brushes with stable and high fluorescence in dry and wet conditions, these surfaces will be subjected to various ionic solutions, and their ability to assist crystallisation will be evaluated [2] by mapping FRET gradients over the surface with confocal microscopy.



Skills that you should already have:

- Advanced knowledge in polymer chemistry
- Knowledge of basic lab equipment
- Independent work in the chemical lab
- Good communication skills

Skills that you will acquire during the internship:

- Hands-on experience with polymer synthesis on different substrates
- Usage of optical microscopy (Confocal laser scanning microscopy, CLSM)
- Expertise in characterisation techniques (Plate reader, Ellipsometer, Contact angle)

Reference:

1. Yadav, J.; Hermes, I.; Fery, A., Besford, Q. A.; ***Small***, 2025, 21, 2409323.
2. Shahidzadeh N,; Schut M. F. L.; Desarnaud J.; Prat M.; Bonn D.; **Scientific Reports**, 5, 10335.