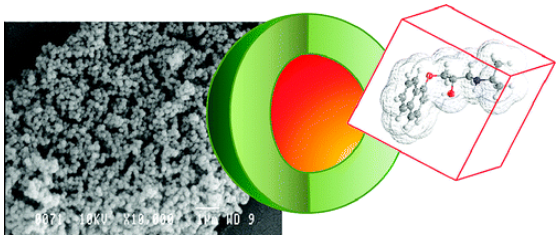
Examensarbete:

Microgel sensors for biochemical analysis



Microgels are cross-linked polymer particles with a physical size of a few hundred nanometers. Compared to traditional (macroscopic) polymer gels, microgels provide more interesting features such as colloidal stability, fluid characteristics, and can be used as modular building blocks to construct functional structures for different practical applications.

In this project, optical chemical sensors will be constructed using microgels as a general platform, on which modular molecular and nanoparticle building blocks will be assembled to offer high selectivity as well as real time signal transduction for detection of certain bioactive molecules. The research will use state-of-the-art polymer chemistry, nanomaterials and nanotechnology to bring in new analytical methods for simple, fast and reliable biochemical analysis for a series of small and large bioactive molecules. The students will gain hands-on experience in basic bioanalytical techniques (including liquid chromatography-mass spectrometry), synthesis and characterization of nanomaterials, and skills in scientific reporting and communication.

The candidates should have finished bachelor level study in chemistry, chemical engineering, environmental science or biotechnology program.

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