Leibniz-Institut für Polymerforschung e.V. Dresden

Institut für Physikalische Chemie und Polymerphysik

Abteilung Nanostrukturierte Materialien

Masterarbeit / Master thesis:

DNAzyme basierte organische Synthesen in Polymer-Mikrogelen / DNAzyme-based organic synthesis in polymer microgels

The research group Polymermicro(bio)reactors (http://www.leibniz-research-cluster.de/) investigates tools, methods and materials for developing novel ways in active compound development utilizing microscopic polymer hydrogels. This way, protein synthesis and enzymatic cascades are performed in a robust, cell-like environment with tailored physicochemical and mechanical properties. Along these lines, the research is based on:

- Fabrication of microfluidic flow cells by lithography and 3D printing
- Microemulsions and surfactant design
- Microscopic multifunctional polymer materials
- Synthesis of hydrogels for cell biology and cell-free biotechnology.

For protection and controlled release of sensitive enzymes and substrates, microscopic capsules are desired, that can be formed with defined size, shell thickness, and loading efficiency.

The master thesis project aims at designing polymer microgels by microfluidics that serve as hosts for DNAzymes in organic synthesis.

Suitable candidates are skilled in **biochemistry as well as organic chemistry** and show a strong interest in microfluidics, specifically emulsions formation.

Highly motivated candidates are invited to send their application with research interests, full CV including a detailed list of experimental and computational skills to jobs@ipfdd.de (for detailed information contact Tony Köhler / Dr. Julian Thiele: koehler@ipfdd.de / thiele@ipfdd.de).

Thesis start should not be later than 09.04.18.