

A master/bachelor project is available at Computational Biology Division of the Institute of Biotechnology (Prof. Schwaneberg) and Lehrstuhl für Physikalische Chemie II (Prof. Rcihtering) at the RWTH Aachen University. This work is carried out in a close collaboration of experimental and computational groups within HICAST (Henkel Innovation Campus for Advanced and Sustainable Technologies) research framework.

Master/Bachelor Thesis

Computer Simulations of Colloidal Systems

Description:

The work will focus on understanding the solubilisation of chemicals by surfactants and polymers in aqueous solution. The projects elucidate complex interactions at the molecular level to tailor materials to application demands. The employed computational techniques will include molecular modelling in different scales (atomistic and coarse grain molecular dynamics simulations). The high throughput computations reduces experimental efforts through which principles for design of new materials is established. Static and dynamic light scattering measurements to validate the model calculations may be carried out in parallel, if the candidate is keen on performing experimental research.

Qualifications

- Student (m/f) in the field of chemistry, physics, or a related subject.
- Special interest in computer simulations of molecular systems
- Previous experience with molecular modeling using force fields will be an advantage, but is not a prerequisite.
- Programming experience is welcome, but is not essential.
- Good knowledge in English (spoken and written)
- High motivation, flexibility, creativity, team-, organizational- and communicational skills

What we offer /Techniques you will learn:

In this project, the computational knowledge in the field of soft matters simulations and high performance computing as well as static and dynamic light scattering measurements (optional) will be gained. The candidate should enjoy working in an open and dynamic environment and cooperate actively with experimental and industrial collaborators. Our dynamic group offers an exciting working atmosphere, excellent infrastructure, and an international perspective.

Estimated time: According to “Studienordnung”

Start: None – applications will be considered until the proper candidate is found.

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