Simulating assembly and stability of amyloid structures.
Understanding the pathology of various diseases such as cancer or Alzheimer's requires insight into the workings of cells on a molecular level. However, cellular processes are often controlled by transient interactions between proteins that are difficult to determine by experiments. Computer simulations can complement experiments in tracing such interactions. We are looking for a highly motivated student that will help us in developing more efficient algorithms for this purpose, and uses these new techniques to investigate the assembly and stability of small amyloid structures. The student will learn to perform Monte Carlo and molecular dynamics simulations (using the GROMACS and SMMP program suites) and to use graphic visualization programs. This project is suited for students interested in the cross section between chemistry and computer science, biophysics, biochemistry or bioinformatics. Some programming experience in Python and C, C++, or FORTRAN95 is required.