Development of algorithms to fit small angle neutron scattering data from polymers in solution

Term and Location: A Master project is available in Prof. Walter Richtering’s group at the Institute of Physical Chemistry.

Duration: 6 Months

Project description: Polyelectrolytes are polymers bearing ionic groups along the backbone which dissociate in polar media. Polyelectrolytes are key ingredients in industrial applications (e.g. as rheology modifiers) and in biological matter (e.g. DNA is a polyelectrolyte). Despite their importance, major questions about their conformation are unresolved. Your work will entail developing a protocol to fit small angle scattering data for various polyelectrolytes systems using previously developed analytical models. All results are available, no experimental work is required.

Work-load: High

You learn: In this project, you will learn about the how small angle scattering data of polymers in solution can be used to extract molecular parameters related to polymer conformation. By the end of the project, it is expected that a research paper partially based on your work will be written for publication.

Candidate profile: The candidate should hold a bachelor’s degree in physics, chemistry, or engineering. Candidates must have some experience using data-fitting programs (e.g. Matlab or IgorPro). A basic understanding of error analysis methods is advantageous but not required. No previous knowledge of small angle scattering or polymers is expected.

How to Apply: Interested candidates should send an application letter mentioning an estimated availability date of start and a CV (including your latest Zeugnis) to Dr. Carlos G. Lopez at lopez@pc.rwth-aachen.de. More information available on request.

Deadline: None – applications will be considered until the position is filled.