

Understanding the rheological behaviour of bio-polymer gels

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

Duration: 6 Months (Master)/3 months (Bachelor)

Project description: Cellulose based polymers and other polysaccharides are widely used in range of industrial applications as thickeners and gelling agents. For example, they provide texture in food products and act a structuring agent in toothpastes. Despite their great importance, achieving a molecular description of the processes underpinning their flow behaviour remains challenging. In this project, you will use rheological tests to explore the flow properties of a cellulose-based polymer (HEC) as a function of polymer concentration solvent quality, focusing on the sol-gel transition. Of particular interest is to understand how the molar mass and chemical composition of the polymer affect the gelling properties of HEC.

Work-load: Medium/High

You learn: In this project, you will learn 1) the basics of bio-polymer characterisation by viscosimetric and light scattering techniques and 2) how to use a rheometer to characterise the flow properties and gelling behaviour of bio-polymers in solution.

Candidate profile: The candidate should hold a bachelor's degree in physics, chemistry, or engineering. Previous experience with rheology is advantageous but not a requirement.

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.