

The behaviour of colloidal particles in ionic liquids

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)

Work-load: Medium/High

Project description: Ionic liquids (IL) are salts with melting points usually below 100 °C, which display good electrical conductivity, thermal stability and low vapour pressure. In recent years, they have attracted great interest due to their applications as lubricants, solvents in bio-catalysis, or as electrolytes in fuel cells. Colloidal particles can be used to modify the flow properties of liquids. In this project, you will study the dynamics of silica nanoparticles dispersed in ionic liquids using shear rheology, dynamic light scattering and several viscosimetric techniques. Specifically, you will study the gelation of a hydrophobic ionic liquid by addition of aggregating fumed silica particles.

Candidate profile: Candidates should have an interest in soft matter. The candidate should hold a bachelor's degree in physics, chemistry, or engineering. No prior experience with rheology and/or scattering is required.

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: Preferably in the first half of 2022 but applications will be considered until the position is filled.