



## Opening for a Postdoc position:

# Membrane filtration and dynamics of microgel suspensions – Simulation and theory

**START:** May 2017 or later

**DURATION:** Two years, can be extended

**SALARY:** E13 TVÖD with additional allowance possible, depending on candidate's profile

The Soft Matter group at the Institute of Complex Systems (ICS-3), Research Centre Jülich, is offering a position for a motivated postdoctoral researcher. The postdoctoral work will be integrated into the soft matter and biophysics activities of ICS-3. The Forschungszentrum Jülich provides a highly interdisciplinary environment and excellent infrastructure, including Europe's most powerful supercomputing center. The accepted candidate will become member of the SFB 985 "Functional Microgels and Microgel Systems" of the German Research Foundation.

### **Description of research work: Where fundamental research meets technological application**

Microgel suspensions consist of globules of cross-linked polymers dispersed in a solvent such as water. The strong sensitivity of the globule size to changes in temperature, pH, ionic strength and concentration is the reason why microgel systems are of importance in various practical applications and fundamental research alike. The research project deals with the calculation of diffusion and rheological properties in concentrated microgel suspensions. Using these properties as input, our theoretical model for the enrichment / purification of microgel particles by pressure-driven membrane filtration will be further advanced in an interdisciplinary collaboration with a process engineering group at the RWTH Aachen University. For this task, state-of-the-art theoretical and simulation methods will be used that have been partially developed and advanced in our group.

### **Requirement**

A PhD degree in Physics, Theoretical Physical Chemistry, or Chemical Engineering is required. We are seeking for a candidate familiar with Brownian and / or fluid dynamics simulation methods applied to colloidal suspensions. Some familiarity with the COMSOL package applied to two-phase flow problems is also helpful. A strong interest in theoretical work in Statistical Soft Matter Physics is requested, as well as good programming and scripting skills, and a good knowledge of English. To apply, please send a motivation cover letter, a full CV including the list of publications, and copies of certificates stating all courses and grades to the email address given below. If possible, arrange for two letters of recommendation.

### **Contact**

Prof. Dr. Gerhard Nägele  
Institute of Complex Systems (ICS-3)  
Forschungszentrum Jülich GmbH  
D-52425 Jülich, Germany

e-mail: [g.naegele@fz-juelich.de](mailto:g.naegele@fz-juelich.de)

homepage: [http://www.fz-juelich.de/SharedDocs/Personen/ICS/ICS-3/EN/Naegele\\_G.html](http://www.fz-juelich.de/SharedDocs/Personen/ICS/ICS-3/EN/Naegele_G.html)