

PhD Position in Molecular Modeling of Charged Polymer Glasses

Job description

From window glass to modern plastics, glass forming materials play a central role in our society, yet the fundamental physics mechanisms that control their properties remain partially uncovered.

This project is part of a collaboration between simulations and experiments to determine structure-property relations for a novel type of polymer glasses, based on charged polymers crosslinked by ionic bonds. This will lead to a fundamental understanding of how charge interactions affect the glass transition, and to design rules for creating a novel generation of polymer glasses, which combine the stability and damping properties of crosslinked plastics with the recyclability and processability of window glass.

This position covers the computational and theoretical side of the collaboration. The project aims at developing chemistry-specific coarse-graining models to determine how variations in molecular features lead to specific glass-forming features. This project is purely computational, but close collaboration and exchange of ideas with the experimental counterpart is also a crucial component.

As a PhD candidate, you are committed to conduct independent and original scientific research, to report on this research in international publications and presentations, and to present the results of the research in a PhD dissertation, to be completed within 4 years. You are expected to contribute 10% of the overall workload to teaching, and to contribute to the ongoing research activity in the group.

Qualifications

You are a highly motivated candidate with:

- a MSc degree in physics, chemistry, or other relevant subjects.
- strong interest in computational research and material science.
- demonstrable experience with scientific programming and molecular dynamics simulations. Familiarity with atomistic simulations of polymers is a plus.
- rudiments of soft matter and glass transition physics.
- strong communication (in English) and collaboration skills.

Organisation

Founded in 1614, the University of Groningen enjoys an international reputation as a dynamic and innovative centre of higher education offering high-quality teaching and research. Flexible study programmes and academic career opportunities in a wide variety of disciplines encourage more than 35.000 students and researchers alike to develop their own individual talents.

This position is embedded in the micromechanics group of the Zernike Institute for Advanced Materials, at the interface between physics, chemistry, biology, and engineering. The mission of the micromechanics group is to develop new models and computational tools for the micromechanics of (bio)materials, and to employ these to develop relationships between the

internal structure of a material and its mechanical and functional properties. More information on the Institute's activities can be found at www.rug.nl/research/zernike/.

Conditions of employment

We offer in accordance with the Collective Labour Agreement for Dutch Universities:

- a salary of € 3.204 in the first year to a maximum of € 4.051 gross per month in the final year (PhD salary scale), based on a full-time position
- a holiday allowance of 8% gross annual income
- an 8.3% year-end bonus.

The position is for four years. First you will be offered a temporary position of one year with the option of renewal for another three years. Prolongation of the contract is contingent on sufficient progress in the first year to indicate whether a successful completion of the PhD thesis within the contract period is to be expected. A PhD training programme is part of the agreement and the successful candidate will be enrolled in the Graduate School of Science and Engineering of the Faculty. The starting date is ideally as soon as possible, and not beyond March 2027. The conditions of employment are available at the University of Groningen website under Human Resources: <https://www.rug.nl/about-us/work-with-us/>.

Application

Do you meet our qualification criteria? If yes, your application should include (please merge all documents into one PDF file):

- a cover letter with background and motivation to apply for this position (max 1 page)
- a curriculum vitae, including details of bachelor and master degrees, list of work experience as well as other skills and a publication list (if applicable). The CV must include contact information of at least two references who can provide information on your suitability for the position.
- a detailed (max 1 page) description of previous research experience, such as bachelor/master research projects. Indicate exactly your contribution.

Failure to meet these formatting requirements may automatically disqualify you.

- You may apply for this position until 31 October 2026 11.59 p.m. Dutch local time (CET) by submitting your document to the Google Form <https://forms.gle/aThoAwFjZe2Ya8f27>.

Shortlisted candidates will be invited for a short online interview at the beginning of November. Preferred starting date is January/February 2027, and not later than March 2027.

We are an equal opportunity employer and value diversity at our University. We are committed to building a diverse faculty, so you are encouraged to apply. Our selection procedure follows the guidelines of the Recruitment code (NVP), <https://nvp-plaza.nl/download/?id=7714> and European Commission's European Code of Conduct for recruitment of researchers, <https://euraxess.ec.europa.eu/jobs/charter/code>.

Information

For information you can contact:

- Dr Andrea Giuntoli, a.giuntoli@rug.nl
Please do not use the e-mail address above for applications.