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Ph.D. Position in Systems Chemistry & Microfluidics
TactoChem – Signal Amplification and Processing

QUICK FACTS

4-year fully funded Ph.D. positions (AIO, full time)

Embedded in the [Lerch Lab](#)

Stratingh Institute for Chemistry, Faculty of Science and Engineering, University of Groningen

Application deadline: October 12th, 2026, end of the day

Ideal starting date: January/February 2027

Watch overview video [here](#).

POSITION

A sense of touch allows us to handle objects with fine motor skills and navigate the complexities of everyday life. Robots struggle with even simple tasks, because their sensing capabilities remain limited. It is incredibly hard to achieve the level of sophistication and high-density integration of sensing, signal processing, and movement that comes so naturally to us. This project, funded by an European Starting Grant, aims to develop a new class of chemical touch sensors that can be incorporated into robotic prototypes.

Join a rapidly expanding team of PhD students and Postdocs, shape a rapidly emerging field with your insights, and become a forerunner in chemically-driven robotics. The core objective of this PhD project is to amplify mechanochemical signals through chemical reactions and transport them across soft robotic hands to enable a sense of touch in robots. Leverage your systems chemistry and/or microfluidics background and learn more about polymer chemistry, rapid prototyping, and cutting edge analytical techniques.

Your main tasks will include to:

- develop soft robotic components with microfluidic channels that can transport chemical signals
- establish chemical reaction networks that allow for amplification of mechanochemical signals and quantify their behaviour, supported by kinetic modelling
- work with soft materials and 3D design and understand how signals travel through materials and activate movement responses
- develop a systems chemistry approach to employ mechanophores for robotics
- excel in a top chemistry group with top-notch infrastructure

CANDIDATE PROFILE

We are looking for a collaborative, creative, and excellent colleague with:

- an M.Sc. degree in chemistry or equivalent.
- demonstrable research experience in systems chemistry, microfluidics, and/or organic synthesis.
- motivation to design and synthesize novel reaction networks and study their behaviour in innervated soft robots
- excellent command of written and spoken English.
- willingness to acquire a variety of additional skills ranging from basic programming to 3D modelling.
- well-developed communication and collaboration skills and the ability to work independently in a multidisciplinary environment.

Ph.D. students are expected to develop scientific independence and complete research projects. Enthusiastic Ph.D. students stay abreast of developments in the field, proactively communicate research results, supervise B.Sc. and M.Sc. students, and work effectively in a team. We are looking forward for you to joining our team to create new mechanochemistry, materials, and robots.

APPLICATION

For more information, please contact Michael Lerch at m.m.lerch@rug.nl. The application should include a **letter of motivation**, your **curriculum vitae**, and **contact details (name, telephone number, e-mail address, and affiliation) of at least two references** for a letter of recommendation. Applications received **by Oct. 12th, 2026**, will be considered for this position. First round (online) interviews will take place on: Oct. 14&15, 2026. Second round interviews last week of September 2026. Preferred starting date is negotiable but would ideally be in January/February 2027.

Applications by female scientists and candidates from underrepresented minorities are especially encouraged.

THE TEAM

Our team, led by Dr. Michael M. Lerch, aims to create a chemical operating system for robots, thereby developing novel chemistry and materials with unprecedented functions. We believe that chemistry can close the performance gap between living organisms and current electronic robots. Over the years, we have built a unique pipeline where we take newly synthesized molecules, incorporate them into materials, and shape them into functional devices. As a PhD student, you will work in an international and interdisciplinary team in a fast-paced, creative, and collaborative research environment, based at the renowned Stratingh Institute at the Faculty of Science and Engineering at the University of Groningen. The functional materials we develop are societally relevant; as part of ARC CBBC and HTRIC, we work with industrial partners and clinical experts to develop next generation functional coatings and clinically relevant robots. The University of Groningen and the Lerch Research Group strive to create an equitable, inclusive, and respectful environment, where researchers of different backgrounds and disciplines can work at the forefront of science.