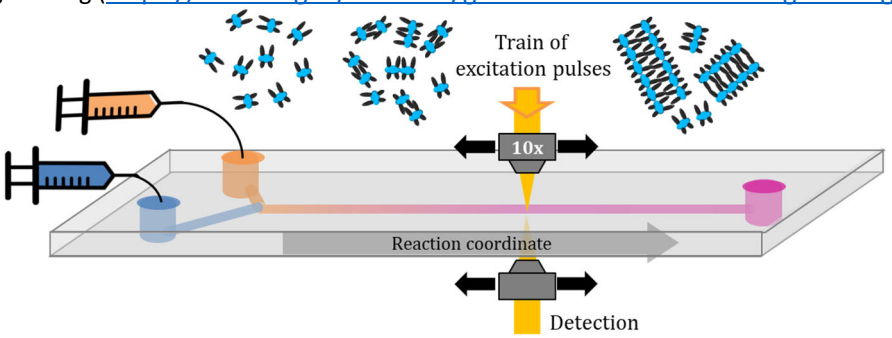
Two PhD-positions in Ultrafast Spectroscopy and Theoretical/Computational Chemistry are available

Within the project "Self-assembly pathways of an artificial light harvesting complex", funded by the Dutch Research Council (NWO), two PhD positions are available at University of Groningen (the Netherlands). The aim of the project is to study how thousands and thousands of molecules organize themselves into highly-ordered functional structures without external guidance. The key to elucidating self-assembly intermediate stages and their kinetics is to confront the spectroscopic data with those predicted theoretical calculations. As such, the project implies strong collaboration between the two PhDs when the theoretical and experimental activities are cross-fertilized to reach the project goals. PhD students will be enrolled in the Groningen Graduate School of Science and Engineering (https://www.rug.nl/research/gradschool-science-and-engineering/?lang=en).



Position 1: "2D spectroscopy of the molecular self-assembly"

The project aims at using a combination of microfluidics and advanced optical spectroscopy to obtain the two-dimensional (2D) spectra of self-assembled species. Microfluidics settings will project self-assembling kinetics onto the coordinate along the microfluidics channel. The optical properties of the intermediate species will be interrogated by 2D spectroscopy which – together with theoretical modelling – allows accurate retrieval of the structural information.

The PhD student will gain experience in designing of microfluidics cells and applying two-dimensional correlation spectroscopy to reveal different stages of molecular self-assembly. The position will be embedded within the Optical Condensed Matter Physics group (https://www.rug.nl/research/zernike/optical-condensed-matter-physics/) of the Zernike Institute for Advanced Materials (https://www.rug.nl/research/zernike/).

Position 2: "Modelling 2D spectra of molecular self-assembly"

The main goals of this project are to unravel the spectral signatures of self-assembly intermediates by combining molecular dynamics simulations (MD), time-dependent density functional theory (TD-DFT) and advanced spectral simulation techniques. From MD structural intermediates will be predicted, the electronic states will be obtained through TD-DFT calculations, which serves as input for an efficient mapping procedure to predict the two-dimensional spectra of the intermediates. The predicted spectra – together with the experimental data – allow unravelling the self-assembly pathway.

The PhD student will gain experience in multiscale modelling approaches for predicting and interpretation of two-dimensional correlation spectroscopy of self-assembly processes. The position will be embedded within the Theory of Condensed Matter group (https://www.rug.nl/research/zernike/theory-of-condensed-matter/) of the Zernike Institute for Advanced Materials (https://www.rug.nl/research/zernike/).

We offer

- Successful candidates will first be offered a temporary position of 1 year with the option of renewal for another 3 years, with a qualifier in the 1st year
- Salary ranging from ~€2300,- gross at the start to ~€3000,- gross in the 4th year
- Excellent benefits including a holiday allowance of 8% of the gross annual salary, a year-end bonus of 8.3% and a solid pension scheme
- Stimulating scientific environment with enthusiastic colleagues
- A number of training programs for additional education, supervision and soft academic skills
- A high degree of responsibility and independence, but also interactions and discussions with colleagues

- Exciting teaching opportunities (up to ca. 10% of the time)

We require

- You are highly motivated and an enthusiastic researcher
- You have an MSc degree in Physical Chemistry, Physics, Chemistry or equivalent
- You have a keen interest and strong skills in fundamental Physics/Theoretical Chemistry research
- You are a team player who enjoys making bridges between theory and experiment
- You are fluent in English

Information and application

Please provide an application/motivation letter, emphasizing your specific interest and motivation to apply for this position, a detailed CV, contact details of at least 2 referees, academic transcripts of B.Sc. and M.Sc. education. An (online) interview will be part of the selection procedure.

Send the application package to:

Position 1: Maxim Pchenitchnikov (M.S.Pchenitchnikov@rug.nl)
Position 2: Thomas la Cour Jansen (t.l.c.jansen@rug.nl)

Background information

The University of Groningen (UG) was founded in 1614, making it the oldest university in the Netherlands after Leiden. It is the 3rd largest university in the Netherlands, with over 33,500 students, 450 professors and 5000 employees. UG brought forward 2 Nobel Prize winners: Zernike (1953) and Feringa (2016). RUG is placed in the top 100 universities worldwide according to four international ranking tables.Within the UG, the Zernike Institute for Advanced Materials (ZIAM) has ranked 4th world wide in terms of citations and impact in Materials Science (Thomson Reuters, 6/2011) and 9th in the THE ranking in Materials Science (1999-2009). Its approximately 250 physicists, chemists, and biologists work together on fundamental leading-edge research in materials science. In the national evaluation in 2010 the Zernike Institute was ranked "exemplary".

Groningen is a vibrant, one thousand year old city in the North of The Netherlands. It combines a rich academic tradition with an attractive city life, characterized by culture, history, and an exciting social scene. Groningen is tailored around students who comprise around one-third of the city's residents. Groningen is popularly referred to as "The World Cycling City" because of integrated, labelled bike paths all around the city.