

Tenure-track Assistant Professor Molecular to Cellular-scale Biophysics (1,0 fte)

Organisation

Since its founding in 1614, the University of Groningen has enjoyed an international reputation as a dynamic and innovative centre of higher education, offering high-quality teaching and research. Balanced study and career paths in a wide variety of disciplines encourage the 30,000 students and researchers to develop their own individual talents. Belonging to the best research universities in Europe and joining forces with prestigious partner universities and networks, the University of Groningen is truly an international place of knowledge.

Job description

The Faculty of Science and Engineering has a vacancy for a tenure-track assistant professor in Molecular to Cellular-scale Biophysics in the Zernike Institute for Advanced Materials. We offer a challenging position in a stimulating, diverse international research environment in a world-class academic institute with a multi-disciplinary research programme that encourages close collaborations between theoretical and experimental groups with different expertise. The Faculty has a wide range of international degree programmes and practically all courses are taught in English.

We are looking for an outstanding biophysicist, who is an enthusiastic teacher and is able to start internationally recognized new research initiatives based on molecular to cellular-scale biophysics. Possible research topics include, but are not limited to, exploiting novel microscopic and spectroscopic techniques to better understand complex biomolecules and assemblies, hybrid biomolecular materials and essential processes of life.

Synergy with ongoing research programmes at the Zernike Institute (see the webpage for details: <https://www.rug.nl/research/zernike/research/program>) is an advantage (but exact overlap of a research line with a Zernike staff member is not desirable). We will support the candidate with an attractive start-up package, access to local state-of-the-art laboratories and facilities, which are constantly being improved to strengthen our program.

Qualifications

We seek candidates with:

- a PhD degree and at least two years of postdoctoral experience abroad (industrial experience can partially compensate for this requirement);
- excellent research qualities, as evidenced by a publication record in international peer-reviewed journals and renowned conferences, and a relevant international network;
- teaching and organizational experience appropriate to the career stage;
- experience with acquisition of external funding appropriate to the career stage;

who are:

- team players with good communications skills;
- fluent in English;
- willing to fulfil the requirements for the University Teaching Qualification;
- willing to learn the Dutch language.

Conditions of employment

Tenure-track Assistant Professor

The University of Groningen offers a gross monthly salary dependent on qualifications and work experience from € 3,475 (salary scale 11 Dutch Universities) up to a maximum of € 5,405 (scale 12) gross per month for a full-time position. The appointment will be initially for a maximum of 7 years at the level of tenure-track Assistant Professor. After 5 years an assessment of performance based on established criteria will take place (see for details Career paths in Science edition 3). If the outcome of the assessment is positive, the Assistant Professor will be promoted to Associate Professor with tenure. There will be another assessment at the end of a further 4-7 year period for the promotion to Full Professor.

Please note that although we are primarily scouting for a junior faculty member, a senior candidate with exceptional qualifications may be appointed at higher (e.g. Associate Professor) level after consultation of the Zernike Institute's Scientific director with the dean.

The salary will show an annual increase within the scale.

In addition to the primary salary the University offers 8% holiday allowance and an end-of-year bonus of 8,3%.

The University of Groningen is an equal-opportunity employer and has adopted an active policy to increase the number of female scientists. Therefore, female candidates are especially encouraged to apply.

The University of Groningen provides career services for partners of new faculty members moving to Groningen.

Application

You may apply for this position at least until March 15th 2018 Dutch local time by means of the application form (click on "Apply" below on the advertisement on the university website). The applications will be separately considered as soon as possible after the submission and the application form will remain active until the position is filled. We expect to inform candidates about our decision around April 5th and the interviews are scheduled for May 7th and 8th 2018 (please block these dates in your agenda, there are no alternative dates available).

Interested candidates are kindly asked to submit a letter of motivation, a curriculum vitae (including 5 references), a list of publications, a list of five self-selected "best papers" (not

copies of the papers), a statement on teaching goals and experience, and a brief description of her/his scientific research plans (maximum: 3 pages).

Response to this vacancy by employment agencies is not appreciated.

Information

For information you can contact:

- Prof. dr. ir. C.H. van der Wal, Scientific Director of the Zernike Institute, +31 50 3634843, c.h.van.der.wal@rug.nl for general information on the institute.
- Prof. dr. W.H. Roos, Professor Molecular Biophysics, +31 50 363 9883, w.h.roos@rug.nl for specific information on the position.

(please do not use for applications)

Additional information

- [About the position](#)
- [About the institute](#)
- [Career Paths in Science](#)

Faculty of Science and Engineering

Profile report: Molecular to Cellular-scale Biophysics
(Biofysica op de Moleculaire tot Cellulaire schaal)

- Discipline: Biophysics
- Level: tenure-track Assistant Professor
- Fte: Full time (1.0)

1. Scientific discipline

Molecular and cellular-scale biophysics addresses the properties, dynamics and interactions of biomolecules and cellular components, aiming at mechanistic insight into biological systems, at the molecular and supra-molecular assembly level. Processes are studied on different time and length scales, down to single molecule resolution, both in vitro and in vivo. This opens opportunities for engineering biofunctionality and (bio)materials and leads to a deep understanding of essential processes of life.

2. Vacancy

This position is opened by the Board of the Faculty (PT/gl/17/00858) and will be embedded in the Zernike Institute for Advanced Materials, research unit Molecular Biophysics. The position falls within the framework of 'Career Paths in Science 3' ('Bèta's in Banen 3'). Please see link for [criteria and conditions](#).

3. Selection committee (BAC)

Prof.dr.ir. C.H. van der Wal, Scientific Director Zernike Institute and professor Physics of Quantum Devices

Prof.dr. W.H. Roos, professor Molecular Biophysics

Prof.dr.S. Faraji, professor Theoretical and Computational Chemistry

Prof.dr. E. Nollen, professor Molecular Neurobiology of Ageing, University Medical Center Groningen

Prof.dr. P.R. Onck, professor Micromechanics and Director of the educational program of the masters Physics and Applied Physics

Prof.dr.ir. S. Tans, Professor Biophysics, AMOLF, Amsterdam
Student member

Prof. B. Poolman, Advisor, professor membrane enzymology and Scientific director Groningen Biomolecular Sciences and Biotechnology Institute (GBB)

Dr. J.P. Birkner, Advisor, Research Manager Zernike Institute

Mrs. A. van der Woude, Advisor, HR-Advisor

4. Research area

The general profile of the position is experimental molecular and cellular-scale biophysics, exploiting novel microscopic and spectroscopic techniques to better

understand complex biomolecules, hybrid biomolecular materials and essential processes of life. The candidate is expected to develop a research programme that aims at the application of (optical) microscopy and spectroscopy to current problems in biomolecular and/or cellular-scale physics, biomolecular and/or cellular chemistry and materials science, as well as at further development of experimental techniques for the life sciences. A strong interaction with theoretical/computational groups and other experimental groups within the Zernike Institute for Advanced Materials and the Faculty of Science and Engineering is intended. Experimental molecular and cellular-scale biophysics are broad disciplines concerned with the application and development of methods from physics and physical chemistry for manipulating and studying the properties of biomolecules, biomolecular materials and cellular systems. Within this discipline, (optical) microscopy and spectroscopy and force measurements have always taken an important place. During the past decade, there has been a revolution in optical techniques, allowing molecules to be positioned and processes to be tracked in living cells below the resolution limit of light. These methods are now increasingly used to image and probe (the dynamics of) individual building blocks of (bio)materials and biological systems and their relation to each other. In addition the application of atomic force microscopy and optical tweezers has proven to be powerful to study structure and mechanics of nano-sized and micron-sized biological systems. These developments have opened entirely new views on the behaviour of these biological systems and open unprecedented possibilities to analyse and engineer novel (bio)materials. Examples are studies of DNA replication and transcription and protein trafficking in living cells, the dynamics of individual biopolymers in their complex matrix, and the characterization of the mechanical properties and assembly dynamics of proteinaceous and lipidic assemblies. Important relevant developments are found in single-molecule spectroscopy, super-resolution optical microscopy, scanning probe techniques and the combination of optical methods with force or electrical measurements. Nowadays, these techniques form an integral part of the biochemical and physical nanosciences, and have indeed opened possibilities to study the structure, dynamics, and the time evolution of individual molecules either in vitro or in vivo.

5. Embedding: institute (and base unit)

The Zernike Institute for Advanced Materials of the Faculty of Science and Engineering has a research programme comprising theory, design, synthesis and analysis of biological systems and materials under one roof and is leading in these fields. The Molecular Biophysics research unit is embedded in the Zernike Institute for Advanced Materials. Currently, the research group is equipped with state of the art equipment for single-molecule and single-particle studies of biomolecular, cellular and materials systems, including super-resolution optical, wide-field total-internal reflection, and confocal microscopy, atomic force microscopy and optical tweezers. The group has synergistic relations not only with groups within the Zernike Institute, but also with research groups from life-sciences (Groningen Biomolecular Sciences and Biotechnology Institute, GBB), the Stratingh institute for Chemistry, the University Medical Center

(UMCG), the European Research Institute for the Biology of Ageing (ERIBA) and the Kolff institute.

Apart from the candidate, the group consists of two staff members, Prof. dr. Wouter Roos (focusing on the dynamics of single molecules, viruses and membrane systems) and Dr. V.V. Krasnikov (laser physicist who is instrumental in the development and maintenance of the hardware). Next to research and general teaching activities the group is currently responsible for coordinating the Bachelor track 'Physics of Life'.

6. Local and (inter)national position

At the national level there are several very active research groups in the field of biophysics, specifically in Amsterdam (AMOLF Institute, VU, UvA), Leiden, Utrecht, Twente, Eindhoven and Delft. The Netherlands has a high concentration of excellent biophysicist and is internationally leading in this field. Groningen is in the unique position to link the biophysics of the cell to that of molecular materials and contribute to biomolecular and bioinspired functionality (several groups of the Groningen Biomolecular Science and Biotechnology Institute, e.g. Poolman, Slotboom, Driessen and others or the Stratingh Institute for Chemistry, e.g. Feringa, Minnaard, Roelfes and others). Moreover, the biophysical research can cross borders to medicine and explore pathological processes, through close interactions with groups at ERIBA, the Kolff institute and the University Medical Center Groningen. The main national sources for funding the research on Molecular Biophysics are administrated by the Netherlands Organization for Scientific Research (NWO) through the Science (ENW) domain. There are excellent international funding programs, such as ERC and FET, available for the expanding field of molecular biophysics.

7. Expected contributions to research

The candidate is expected to initiate and develop an internationally leading research programme in the field of Molecular and cellular-scale Biophysics. The research should have a visibility on the national and worldwide level and lead to publications in top journals. Further it is expected, that the new professor will take a leading role in molecular biophysics field within the Netherlands. The research is also expected to cross-fertilize the existing research within the institute and should lead to a strengthening of the international reputation of the group and the institute. Obtaining substantial external funding for PhD projects is crucial. Supervision of PhD students is an important part of the research activities. The research is expected to strengthen the existing efforts within the Zernike Institute in the field of molecular biophysics and to take an international leadership.

8. Expected contributions to teaching

The candidate is expected to contribute to the teaching programmes in the bachelor and master degree programs within the Undergraduate and Graduate Schools of Science and Engineering as well as to the Topmaster programme Nanoscience,

organized by the Zernike Institute. She/he is expected to participate in the teaching programme of specialized courses in relation to molecular and cellular-scale biophysics and other related topics, e.g. the bachelor track 'Physics of Life'. Furthermore, the candidate will be involved in supervising bachelor, master and PhD students. Upon appointment, depending on experience and formal qualifications to date, the candidate may be required to enter a nationally standardized tertiary teaching skills certification trajectory (BKO or Basis Kwalificatie Onderwijs), successful completion of which is a condition for extensions and tenure.

9. Expected contributions to the organization

The candidate is expected to have an active interest and to provide a positive contribution to the management and organizational tasks of the institute. At the level of the FSE, the candidate will contribute to the organization of the faculty, for example by participating in working groups and committees, in the fields of teaching, research and management. The candidate will participate in relevant national and international organizations.