

Postdoc Innovative microscopy to probe the biophysics of DNA replication

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Job description

We are seeking an exceptional experimentalists for a challenging and innovative project to design and construct a cutting-edge microscope for single-molecule studies of DNA replication. This project, which is funded by NWO, is a collaborative effort between experts in innovative microscopy and biophysics.

What are you going to do?

In this fully-funded 3-year project, you will:

- be embedded in a communicative interdisciplinary team that is formed by a collaboration between two research groups at TU Delft;
- build on our experience with optical design and single-molecule instrumentation to design and build a novel microscope combining imaging and force spectroscopy (magnetic tweezers);
- develop/apply simulations and data analysis routines to predict and verify instrument functionality;
- have the opportunity to obtain teaching experience and improve your leadership skills while guiding students;

About the project

Our goal is to develop and build a state-of-the-art microscope that will enable us to study the dynamics of DNA replication at the single-molecule level. The primary focus of the position is on building and testing the microscope, which will be used to study the activity of eukaryotic replisome.

As part of this project, you will be responsible for designing, constructing, and testing the novel microscope. You will also work on verifying samples using biophysical and biochemical technologies and analyzing datasets using biophysical modeling. Additionally, you will collaborate with international experts in the field, publish high-quality scientific papers, and make significant contributions to advancing this exciting area of research.

The Carlas Smith Lab (<https://twitter.com/carlasssmith>), internationally recognized for the development of next-generation imaging systems, is located within the Department

of Delft Center for Systems and Control (DCSC) at the TU Delft. The lab develops next-generation imaging systems by synergistically combining novel hardware and information processing algorithms to achieve unprecedented performance. Here at the convergence of artificial intelligence, optics, mechatronics, and electronics, our diverse and interdisciplinary team at DCSC comprises passionate students and postdocs who strive to transcend the boundaries of imaging and actuation technologies by making the invisible visible.

Requirements

For this innovative, interdisciplinary, and NWO-funded 3-year project, we are looking for an enthusiastic postdoc, with:

- a completed Ph.D. degree in (bio)physics, quantitative microscopy, interdisciplinary nanosciences, biochemistry, or related areas;
- practical experience in the above areas and single-molecule experiments and analysis are desired;
- a strong motivation to develop either a quantitative microscopy skillset (optics and microscopy, advanced data analysis and pattern recognition) and interest in interdisciplinary research;
- an independent, well-organized, and reliable work style together with an ability and interest in working in a small team;
- good interpersonal communication skills and a strong interest in the broader field of biophysics, thereby contributing to our interactive lab culture.

We look for a friendly and driven colleague of all kinds to enrich our team. We would like to welcome the new postdoc as soon as possible.

Conditions of employment

Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities (salary indication: € 3.703 - € 4.670 per month gross). The TU Delft offers a customisable compensation package, a discount on health insurance and sport memberships, and a monthly work costs contribution. Flexible work schedules can be arranged.

For international applicants, TU Delft has the [Coming to Delft Service](#). This service provides information for new international employees to help you prepare the relocation and to settle in the Netherlands. The Coming to Delft Service offers a [Dual Career Programme](#) for partners and they organise events to expand your (social) network.

TU Delft (Delft University of Technology)

Delft University of Technology is built on strong foundations. As creators of the world-famous Dutch waterworks and pioneers in biotech, TU Delft is a top international university combining science, engineering and design. It delivers world class results in education, research and innovation to address challenges in the areas of energy,

climate, mobility, health and digital society. For generations, our engineers have proven to be entrepreneurial problem-solvers, both in business and in a social context.

At TU Delft we embrace diversity as one of our core [values](#) and we actively [engage](#) to be a university where you feel at home and can flourish. We value different perspectives and qualities. We believe this makes our work more innovative, the TU Delft community more vibrant and the world more just. Together, we imagine, invent and create solutions using technology to have a positive impact on a global scale. That is why we invite you to apply. Your application will receive fair consideration.

Challenge. Change. Impact!

Faculty Mechanical, Maritime and Materials Engineering

From chip to ship. From machine to human being. From idea to solution. Driven by a deep-rooted desire to understand our environment and discover its underlying mechanisms, research and education at the 3mE faculty focusses on fundamental understanding, design, production including application and product improvement, materials, processes and (mechanical) systems.

3mE is a dynamic and innovative faculty with high-tech lab facilities and international reach. It's a large faculty but also versatile, so we can often make unique connections by combining different disciplines. This is reflected in 3mE's outstanding, state-of-the-art education, which trains students to become responsible and socially engaged engineers and scientists. We translate our knowledge and insights into solutions to societal issues, contributing to a sustainable society and to the development of prosperity and well-being. That is what unites us in pioneering research, inspiring education and (inter)national cooperation.

Click [here](#) to go to the website of the Faculty of Mechanical, Maritime and Materials Engineering. Do you want to experience working at our faculty? These [videos](#) will introduce you to some of our researchers and their work.

Additional information

For more information about this vacancy, please contact Dr. Carlas Smith, c.s.smith@tudelft.nl, phone: +31 (0)15-278 2411

Application procedure

Are you interested in this vacancy? Please apply before 10 June 2023 via the application button and upload:

- a motivated cover letter of application
- a detailed CV
- the names and contact information of three references.

For information about the application procedure, please contact Linda Ruijters, HR advisor, recruitment-3me@tudelft.nl

Applications will be evaluated on a first-come, first-served basis.

Please note:

A pre-employment screening can be part of the selection procedure.

You can apply online. We will not process applications sent by email and/or post.

Acquisition in response to this vacancy is not appreciated.

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