

# PhD: High-Resolution Molecular Tumour Imaging

**Engels -- Faculty/department** Applied Sciences

**Level** Master degree

**Maximum employment** 38 hours per week (1 FTE)

**Duration of contract** 4 years

**Salary scale** €2042 to €2612

## Applied Sciences

The Faculty of Applied Sciences is the largest faculty of TU Delft, with around 550 scientists, a support staff of 250 and 1,400 students. The faculty conducts fundamental, application-oriented research and offers scientific education at the bachelor, master and doctoral levels. The faculty is active in the fields of Life and Health Science & Technology, Nanoscience, Chemical Engineering, Radiation Science & Technology, and Applied Physics.

Radiation is the unifying research theme of the Department of Radiation, Radionuclides and Reactors ([www.rrr.tudelft.nl](http://www.rrr.tudelft.nl)). The focus of our research is on energy and health. However varied our interests, whether they be materials, sensors and instrumentation, energy and sustainable production or health, all our research is related in some way to radiation.

The Radiation, Detection and Medical Imaging (RD&M) section conducts research on:

- Biomedical Imaging Systems (e.g. PET, SPECT, CT and hybrid imaging systems).
- Tomographic image reconstruction, modelling and simulation of imaging systems.
- Gamma-ray detectors for biomedical imaging.
- Image-guided radiation therapy.

## Job description

Single Photon Emission Computed Tomography (SPECT) can discover tumours and characterise cell properties using specific radio-labeled molecules ('tracers'). In a new project, our group will realise a novel SPECT scanner for imaging breast tumours with unprecedented spatial resolution. Such a scanner can image tumours in much more detail than is currently possible and may therefore improve diagnosis and treatment of cancer. The new scanner is expected to reach very high resolutions because it will be based on novel focusing multi-pinhole collimators and advanced reconstruction scanning modes. The candidate is expected to develop models, simulators and reconstruction methods to predict the performance of different system geometries. He/she will also deal with sampling problems that may occur in these new geometries and will participate in experimentally testing systems that result from this project.

## Requirements

The applicant should have a master's degree in physics, mathematics or engineering. An affinity for computer simulations and modelling is highly preferred. The candidate will work in a highly multi-disciplinary team. Good communication skills and an excellent

command of English, both written and spoken, are important.

### **Conditions of employment**

TU Delft offers an attractive benefits package, including a flexible work week, free high-speed Internet access from home (with a contract of two years or longer), and the option of assembling a customised compensation and benefits package. Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities. Delft University of Technology strives to increase the number of women in higher academic positions; women are therefore especially encouraged to apply.

### **Information and application**

For more information about this position, please contact Dr. Marlies Goorden, phone: +31 (0)15-2786007, e-mail: [m.c.goorden@tudelft.nl](mailto:m.c.goorden@tudelft.nl). To apply, please e-mail a detailed CV along with a letter of application to Thea Miedema, [T.Miedema@tudelft.nl](mailto:T.Miedema@tudelft.nl). When applying for this position, please refer to vacancy number TNWRRR12-052.