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PhD position in medical imaging

Faculty of Applied Sciences
Radiation Detection & Medical Imaging

Ultrafast detectors for time-of-flight PET

www.rrr.tudelft.nl/rdm

Deadline for application: 20-Jun-2011

Positron emission tomography (PET) is a key medical imaging technique in the diagnosis of cancer and other applications. Recently the use of time-of-flight (TOF) information, requiring sub-nanosecond timing resolution, has been shown to enable significant improvement in PET image quality.

SUBLIMA is a FP7 Large-scale Integrating Project (<http://www.sublima-pet-mr.eu/>) in which TU Delft collaborates with Philips Research and other institutions to realize truly simultaneous, fully integrated, whole-body TOF-PET/MRI technology for concurrent functional and anatomical imaging. It will combine the extremely sensitive functional imaging possibilities of PET with the excellent soft-tissue contrast and complementary functional imaging capabilities of MRI.

SUBLIMA aims to push TOF-PET to the physical limits by introducing new methods and technologies in every part of the imaging chain. At TU Delft we have recently established a world-record coincidence resolving time (CRT) of < 100 picoseconds. This research will be taken forward by focusing on a novel, compact, scalable, MR-compatible PET detector concept that makes use of new scintillation materials, new solid-state light sensing technology, and real-time, digital signal processing, which will form the basis for PET systems with unsurpassed imaging performance.

For this project we are looking for enthusiastic and creative young physicists who are motivated to push the limits in medical imaging instrumentation. You will be based at the section Radiation Detection & Medical imaging (RD&M) of the Faculty of Applied Sciences of Delft University of Technology (TU Delft) and you will work closely together with colleagues from other institutions involved in the project.

Applicants need to have an MSc in Physics or Applied Physics. We are looking for candidates with affinity for experimental physics, instrumentation development, data acquisition, signal processing, etc. Experience in relevant areas of physics and technology, such as ionizing radiation physics, radiation detection technology, analog and digital electronics, etc., is a plus.

Good communication skills and excellent English are requested. You should possess a pro-active, independent, problem-solving, and result-oriented work attitude. Successful candidates will be expected to publish their results in peer-reviewed scientific journals, to participate actively in international conferences, and to write a PhD thesis.

To apply, please e-mail a detailed CV along with a letter of application by 20 June 2011 to Dr. Schaart, d.r.schaart@tudelft.nl. Foreign students are advised to mention their GRE (physics) and TOEFL scores in the application letter.