PhD Position (4 years)

Towards non-invasive monitoring of chemical components in human blood or tissue

In the Chair Biophysical Engineering (Faculty of Science and Technology of the University of Twente) we develop optical methods to study biological systems from the single molecule to the cell level. Furthermore, a large effort is put into the investigation of non-invasive optical methods for the detection of biomolecules in humans, which can serve as reporters of diseases, or, more, generally, of the physical condition.
In this last field we have a PhD assignment available.

The project
In this challenging project you will explore a new spectroscopic method, *acousto-optic* spectroscopy, in its ability to measure non-invasively and locally the degree of oxygenation of human blood, or the concentration of glucose or cholesterol, and other important biomolecules.
In the current stage of the project experimental and theoretical aspects are equally important: experimental questions, such as finding the best measuring strategy, and theoretical issues, such as setting up models for ultrasound modulated light in scattering media, will be addressed.
In this project you will have a close collaboration with a physical engineer on a variety of aspects, such as measurement technology, computer interfacing, manipulation of ultrasound, coherent illumination.
After 2 years, when we plan to have constructed a first prototype for measurement of blood oxygenation, a collaboration will be set up with medical doctors in the hospital to test the method and the instrument in a clinical environment.

The candidate
We ask from you a master degree in physics, with a strong background in instrumentation, and, preferably, optics. We also ask from you the motivation and ability to theoretically model our approach.

Offer
You will be appointed at the University of Twente (www.utwente.nl) for 4 years, the gross monthly salary will be around 1900-2400 Euro. The university is situated in the city of Enschede, in the eastern part of the Netherlands.

Information and application
For more information on the chair Biophysical Engineering, see www.tnw.utwente.nl/bpe.
For more information on the project, contact Dr. R.P.H. Kooyman (r.p.h.kooyman@tnw.utwente.nl, tel. +31 53 489 3067).
Applications should be accompanied by a resume.