

Lehrstuhl Nanotechnologie

Development of Sensor Devices for the Detection of Small Molecules

The group of **Nanotechnology** at the Department of Microsystems Engineering (IMTEK), Albert Ludwigs University Freiburg, Germany is offering an immediate opening for a **PhD position** (50%-75% E13 depending on the candidate). After the first publication an up-grade to a 75% E13 position can be offered.

The project will be the collaboration between Laboratory of Nanotechnology at IMTEK, Faculty of Engineering (Prof. M. Zacharias) and Prof. W. Weber (Faculty of Biology), both from the University of Freiburg. The aim of the project is the development of new concepts for electronic read-out of biomolecular/drug-target interactions for real time evidence of particular small molecules in an analyte and the detailed investigation of cross sensitivity of the device and the multiplexed detection of several different small molecules, such as antibiotics, after developing a separated functionalization of selected nanostructures on the chip.

We will design new concepts for future device applications based on the recognition of drug-target interactions on a nanostructured platform on wafer scale. A platform for real-time diagnostics of small molecules, such as antibiotics will be developed and integrated. Several design architectures have to be engineered and fabricated. The realization involves the design and simulation of the respective nano-devices, their testing, optimization and verification.

The successful candidate has already demonstrated experience with clean room processes. Further experience is required in electrical engineering and semiconductor physics. A major point will be the multiplex detection of individual functionalized sensors at the same time which involves the design of electrical interface circuits. Favorable is also first experience with atomic layer deposition (ALD) as well as surface chemistry.

The IMTEK at Freiburg has a research community that provides excellent opportunities for career development. The Laboratory of Nanotechnology is established since 2007 and offers top level research activities in fields like nanocrystals, nanowires, and ALD; for more information see: <http://www.imtek.de/professuren/nano>

Candidates should submit CV, certificates of the study, a publication list and the names of two referees to:

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