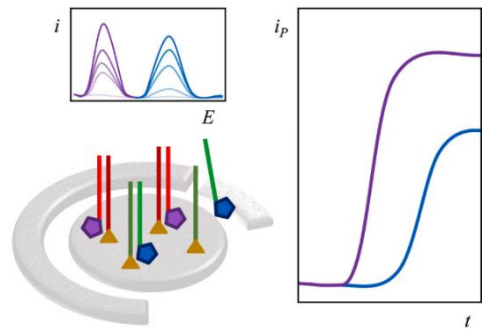


The Department of Microsystems Engineering (IMTEK) is one of the world's largest and leading academic research centers in the field of microsystems technology. The Laboratory for MEMS Applications (Prof. Dr.-Ing. Zengerle) develops tools for diagnostics, microfluidics and life-science research. For a research project in collaboration with academic and industrial partners, we are looking for a



PhD Student (m/f/d) 80 %

Optimization of Carbon Electrode Interfaces for Reagent-Free Electrochemical Detection at the Point of Need

In the Electrochemical Biosensors Group

We are seeking a highly motivated PhD student to contribute to the development of robust carbon electrode interfaces for electrochemical multi-analyte detection in human body fluids. The project combines fundamental surface engineering with translational biosensor development in a highly interdisciplinary research environment.

You will work on the optimization and scalable implementation of biofunctionalization strategies to enhance the robustness, and analytical performance of electrochemical biosensors. A key focus will be the reduction of biofouling and the improvement of signal quality in complex biological matrices, with the aim of enabling reliable sample-to-answer solutions for future diagnostic applications.

Your tasks

- Develop advanced electrode functionalization strategies, including tailored anti-biofouling surface modifications.
- Establish scalable DNA-based biofunctionalization of electrodes.
- Investigate multiplexing strategies for molecular isothermal and aptamer-based detection.
- Integrate molecular assays into sample-to-answer cartridges.
- Analyze and process data to reduce interference from complex biological matrices.

Your profile

- Degree in chemistry, biochemistry, biophysics or related discipline.
- Knowledge of electrochemical methods such as cyclic voltammetry and SWV is an advantage.
- Experience with surface chemistry on gold or carbon, and simple organic syntheses, is an asset.
- Structured, independent, and meticulous working style with strong planning and documentation skills.
- Curiosity to learn new methods and contribute to a multidisciplinary team.
- Entrepreneurial mindset and interest in spin-off formation are an asset.

We offer

- An attractive position in a modern, well-equipped, and industry-oriented research institute, offering exciting insights into medical device research and development.
- Close scientific supervision and comprehensive onboarding into the research topic.
- A fixed-term position for 2 years, with the possibility of extension.

If you are interested, please contact us for further information:

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