

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 a leading European sensor company, we are looking for a

PhD student (m/f)

in the area of Microfluidics for

Investigation of capacitive sensor concepts for flow and composition sensing



The aim of this project is to develop novel sensor technologies – based on capacitive concepts – by which flow rate and composition of fluids can be continuously and instantaneously monitored. It should be investigated how mixtures of liquids affect the output signal of a given sensing element, and therefore which parameters of the mixture of liquids can thus be measured.

Your tasks:

- Design and fabricate novel sensors for monitoring flow rate and composition of fluids for complex liquids e.g. with particles in a wide viscosity and temperature range
- Develop numerical models by Computational Fluid Dynamics and Electrodynamic Simulation tools
- Realization of an experimental set-up to characterize various sensor concepts and benchmark them with reference sensors
- Investigate different control strategies with the distributed sensors and actuators for liquid delivery
- Evaluation of flow rate and composition by artificial intelligence algorithms

Your profile:

- You have completed a university degree in physics, mechanical engineering, mechatronics, microsystems engineering or similar with outstanding performance
- Experience in the field of MEMS-sensor technologies and good knowledge in microelectronic circuit design
- Skills in numerical simulation (either CFD, electrodynamics or both)
- Good team spirit and solid communication skills in English and German language

We offer:

- Young, dynamic, creative team and environment
- Attractive workplace in a modern, excellently equipped laboratories
- Opportunity to prepare a PhD thesis based on the project results
- Close collaboration with a leading European sensor company

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

Sabrina Kartmann

Laboratory for MEMS Applications
Building 103, Room 02-101
phone: 0761 / 203-73287
Email: sabrina.kartmann@imtek.de

Dr. Peter Koltay

Laboratory for MEMS Applications
Building 103, Room 02-213
phone: 0761 / 203-73240
Email: peter.koltay@imtek.de