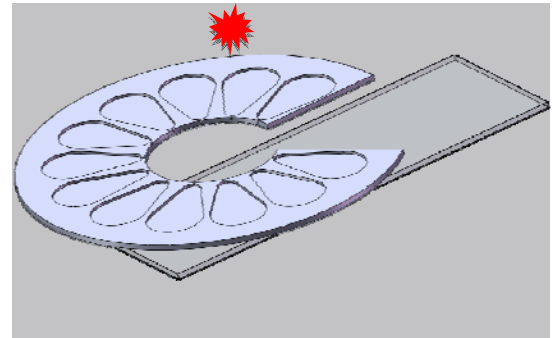


Multi-Reaction, Multi-Sample Micro-Fluidic Platform – 3 μ P

Partners: Fraunhofer IZM (Berlin),
Fraunhofer IZI (Leipzig) , FEMTO-ST (Besançon)

Starting date: September 2009

Name of the authors: Erik Jung, Jörg Hackermüller, Chantal Khan-Malek



Objectives of the project and challenges

Microfluidic platform for multiple samples with multiple analytes to run diagnostic analysis

The target platform intends to integrate conventional microfluidics with electrowetting assisted droplet handling into a diagnostic system, separating a cheap, disposable part from the multiple use fluidic carrier delivering the required analytes. The choice of droplet based microfluidics on the disposable part, controlled by electric fields, enables an extremely fast adaption by modifying the protocol software only to run multiple analysis routines without the need for individual channel geometries and analyte injection points. Final analysis is currently planned to use fluorescence detection, future concepts may involve CNT based techniques, aptamers or pure electronic detection schemes.

Creation of long-term strategic French-German alliances

The partnership between the consortial partners builds on already existing teams and will strengthen their collaboration experience, exchange on scientific and technological level and promote the spirit of open exchange without national boundaries. The partners will continue to provide a natural collaboration environment for future scientific and technical innovations. With the transnational and interdisciplinary partnership, it will also be an extension of the established industrial relations in existence at each institute into transnational future cooperations leveraging the individual expertise, the collaborative spirit and joint IP portfolio.

Expected results and market opportunities

The market for microfluidic diagnostic devices is expected to grow to ~5bn USD in 2015, with annual growth rates predicted up to 18%. This market is not addressing as of now the novel opportunities for personalized diagnostics and therapy (theranostics), which will provide additionally revenue to the industrial partners focussing on that field of interest. Social impact of the proposed platform cannot be underestimated. The scientific achievements will further the RNA based diagnostics, supporting fast and minimally invasive diagnostics using biomarkers and *Point of Care* analysis. The developed platform will provide a basis for industrial entrepreneurs to build their innovative diagnostic systems on. Thus, patients need not to wait days for diagnostic results, quickly spreading pandemics can be identified fast and contained regionally, with optimum medication provided to the sick.