



Fraunhofer

analytica, 10. – 13. Mai 2016, Messe München

NEW TECHNOLOGIES FOR ANALYTICS AND DIAGNOSTICS



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“made by Fraunhofer” innovations cater to the customer’s needs, ranging from feasibility studies to prototype device development, analytical services and the relevant product approvals. Fraunhofer considers itself an individual service provider able to support research and development projects and assist customers in the process of launching their products onto the market. Fraunhofer’s solutions increase the efficiency of analytical processes, ease the strain of routine analytical tasks, and streamline the evaluation and interpretation of measurement data.

We present innovative systems for processing blood and tissue samples, and showcase systems for the following diagnostics. At analytica, we additionally showcase chip-based analysis tools, smart microscope and mass spectrometer systems, as well as development of equipment for quality control within production processes.

Nine participating Fraunhofer Institutes are showcasing this broad range of services at analytica 2016. Explore the Fraunhofer world of analytics, and visit us at **Hall A1, Booth 526!**

PARTICIPATING FRAUNHOFER INSTITUTES

FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS

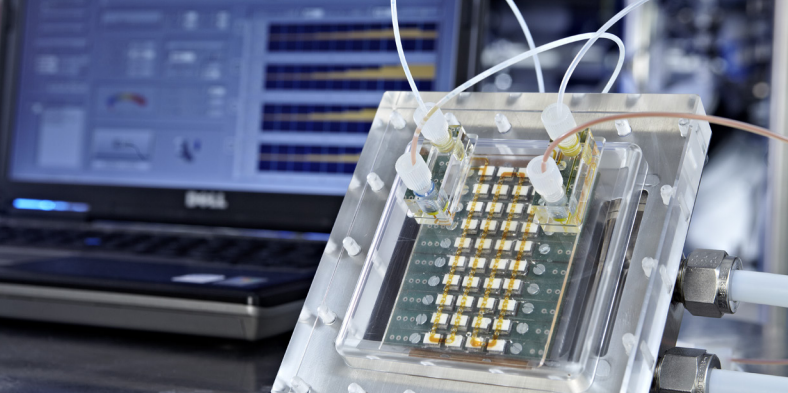
Image analysis for brightfield and fluorescence microscopy

Fraunhofer IIS develops new methods and systems for digitalization and analysis of tissue and cells in microscopic images for applications in laboratory diagnostics and digital pathology. We are pleased to offer our services, which range from initial Feasibility studies and data analysis for specific applications up to research and development projects (contract R&D) including support for regulatory affairs. The department maintains a certified quality management system accordant to ISO 13485.

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FRAUNHOFER INSTITUTE FOR CHEMICAL TECHNOLOGY ICT

Process Analysis

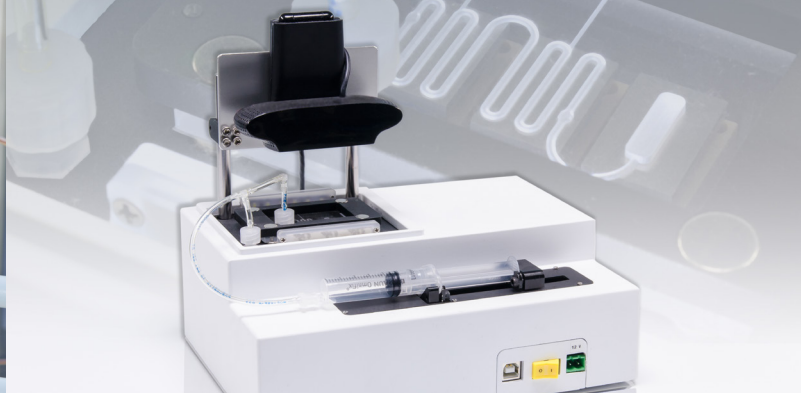
At the Fraunhofer ICT process analysis is an essential tool for the design, diagnostic and optimization of chemical processes. Depending on the specific problem spectroscopic process analysis in the form of UV/Vis, NIR, MIR and Raman spectroscopy is adapted to continuous and microreaction processes as inline, online or at-line measurement technology. In particular, techniques with a high degree of temporal and spatial resolution are used:

- Pushbroom-imaging (UV/Vis, NIR)
- Multiplex-spectroscopy (MIR, NIR)
- Quantum cascade laser spectroscopy (MIR)
- Surface enhanced Raman spectroscopy (SERS)
- continuously operating reaction calorimeters in real time

By applying statistical design of experiments and chemometric methods providing quantitative analysis of product composition in real-time, appropriate process windows and optimal process conditions can be identified.

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FRAUNHOFER ICT – IMM

Fraunhofer ICT-IMM's focus in the area of Microfluidic Analysis Systems is the customer specific development of integrated, automated microsystems and components for medical diagnostics, environmental analysis, biological security applications, food quality control, industrial analytics and process control. With the help of micro-structuring technologies and model-based design we develop efficient biomedical diagnostic systems (lab-on-a-chip or μ TAS) for manifold applications.

- Isolation, detection and separation of circulating tumor cells
- Counting of cells or particles by means of flow cytometry
- Lab-on-chip platform "Simplex"
- Ion analysis via chip-based electrophoresis
- Simultaneous titration

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PROJECT GROUP FOR AUTOMATION IN MEDICINE AND BIOTECHNOLOGY PAMB

The Project Group for Automation in Medicine and Biotechnology at Fraunhofer IPA researches the potential to automate clinical and biotechnological processes. We support our costumers as independent R&D consultants in automation projects. At analytica, we present smart systems for the processing and analysis of samples in medical diagnostics.

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FRAUNHOFER INSTITUTE FOR INTERFACIAL ENGINEERING AND BIOTECHNOLOGY IGB

Process Analysis with Real-Time Mass Spectrometer

Thanks to a special intake system, the real-time mass spectrometer foxySPEC, which will be available in August 2017, is able to detect up to 30 components simultaneously from the gas phase and a liquid – directly during the production process and with a sensitivity in the lower ppm range. It is therefore suited for the automated monitoring of chemical reactions and biotechnological processes in food, pharmaceutical and chemical industries.

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Quality control, food and environmental analysis

One focus is the development of analytical methods when standardized methods do not exist. For the determination of individual nano-titanium dioxide particles in complex media, such as in cosmetics or wastewater, a mass spectrometric measurement method using inductively coupled plasma (SP-ICP-MS) was developed.

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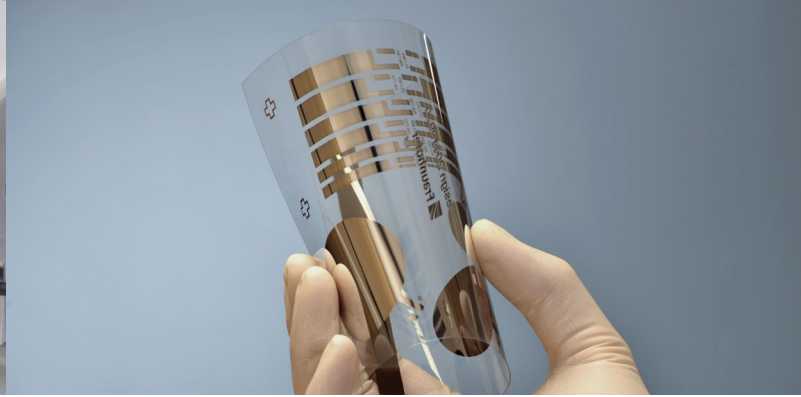


FRAUNHOFER INSTITUTE FOR SILICATE RESEARCH ISC

The Fraunhofer ISC provides chemical analysis for non-metals, analysis in the micro and nano range, damage analysis, interface and surface analysis, product testing as well as characterization of structural and layer properties. In addition, the Center of Device Development (certified according to ISO 9001:2008), part of Fraunhofer ISC, is specialized in the development of scientific research plants and devices for the industry. The plants can be used both for the characterization of new materials as well as for the quality control of production processes. We offer the entire range of skills for analytical services: From materials analysis up to conception and construction of analytical devices and plants.

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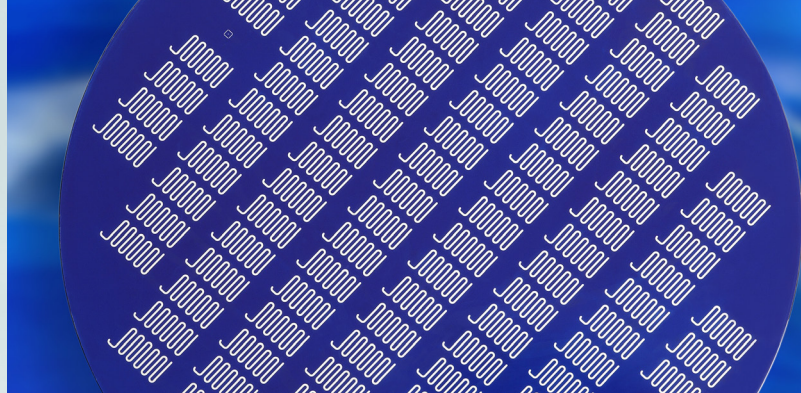
FRAUNHOFER INSTITUTE FOR APPLIED OPTICS AND PRECISION ENGINEERING IOF

Printed components for lab-on-chip systems

The exhibit features components produced by means of digital printing processes (inkjet). Lab-on-chip systems facilitate specific chemical and biological analyses using particularly small amounts of liquid for point-of-care applications. Inkjet-printed structures that are combined with replicated microstructures allow functionalities that are usually realized externally (e.g. pumping, temperature control) to be integrated on chips. This innovative manufacturing approach enables very flexible and cost-effective processing (disposable chips).

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FRAUNHOFER INSTITUTE FOR CELL THERAPY AND IMMUNOLOGY IZI; BRANCH BIOANALYTICS AND BIOPROCESSES (IZI-BB)

The Fraunhofer IZI-BB, Potsdam-Golm branch, offers a long-standing expertise in molecular bioanalytics, cellular biotechnology, nanobiotechnology as well as cell-free protein synthesis. Analytica exhibits include a credit-card sized cartridge for patient-near multiparameter diagnostics, an innovative microscope for the inspection of multilayer cell culture flasks and a smartphone based point-of-need analysis system. All technologies can be adapted to specific areas of application, and services and projects related to these topics are also available. We are your partner for the development of innovative diagnostics, covering the whole process from biomarker to product.

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FRAUNHOFER INSTITUTE FOR SILICON TECHNOLOGY ISIT

Point-of-care diagnostics, micro-chromatography

Fraunhofer ISIT develops silicon chip-based microfluidic analysis systems for the separation and detection of chemical and biological molecules. These portable systems are designed to be robust, user-friendly and enable tests to be carried out anywhere quickly and accurately. They are particularly designed for use in point-of-care diagnostics and on-site food and environmental analytics.

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IMPRINT

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