



## SERVICES & TECHNOLOGIES

Fraunhofer IMS works from design up to pilot fabrication of application-specific integrated circuits. We offer technology development on CMOS and MEMS processes. Furthermore, we develop embedded hardware-software systems. Our living labs at the Fraunhofer inHaus-Center provide nearby facilities for evaluation of concepts and demonstrators.

We operate three in-house cleanrooms for processing of 200 mm wafers: Our CMOS line offers acknowledged automobile quality with robust CMOS processes down to 0.35 µm. In our MEMS line we realize intelligent single-chip microsystems by complementing CMOS wafers with additional structures and functionalities. Furthermore, our service is complemented by facilities for test and assembly, including special capabilities for pressure and image sensors.

As part of the German public project „Forschungsfabrik Mikroelektronik Deutschland“ (Research Fab Microelectronics Germany) Fraunhofer IMS has been enabled to develop and realize “More Than Moore” CMOS ASICs and MEMS devices and sensors in its clean rooms.

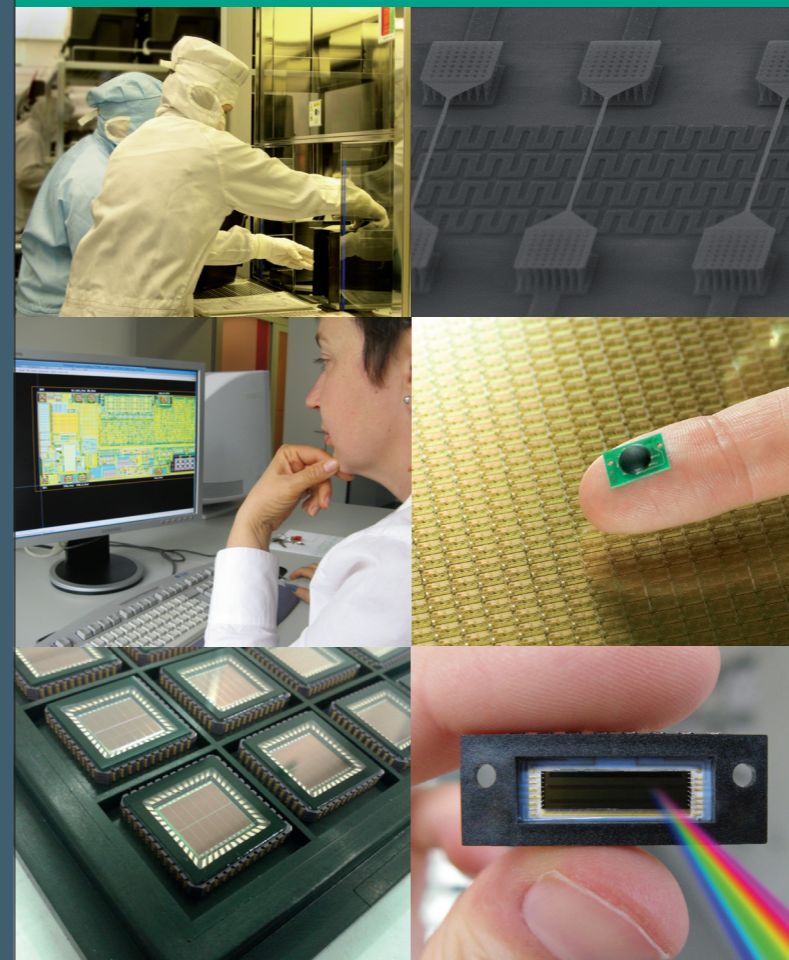


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## EUROPEAN RESEARCH ACTIVITIES



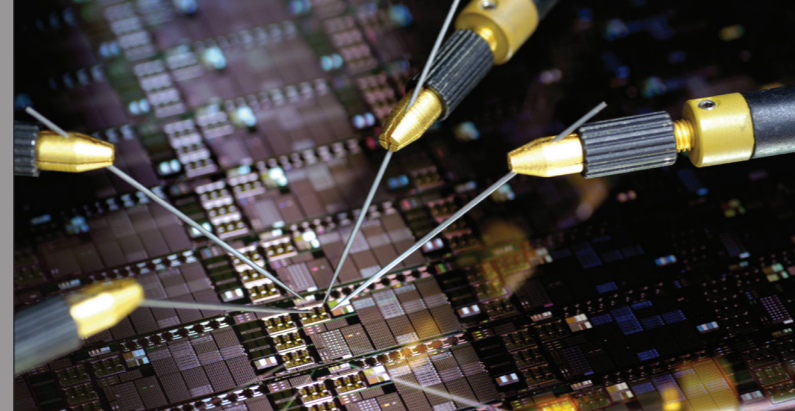
## FRAUNHOFER IMS SHORT PROFILE

With more than 30 years of experience and proven expertise in microelectronic circuits and systems, Fraunhofer IMS carries out research, development and pilot fabrication of microelectronic solutions for industrial and public clients. We align our work with the requirements of our customers and partners focussing on strong, efficient and marketable developments. To tie our know-how adequately we have united our competencies in 9 business units:

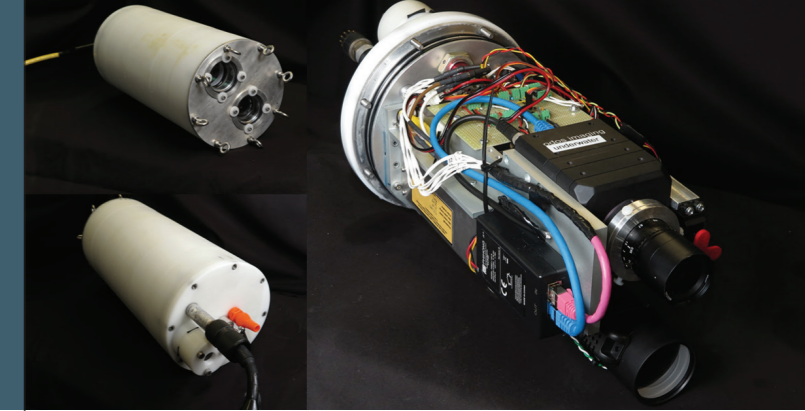
- Devices & Technologies
- ASICs
- High Temperature Electronics
- IR Imagers
- CMOS Image Sensors
- Pressure Sensor Systems
- Biohybrid Systems
- Wireless and Transponder Systems
- Electronic Assistance Systems



# OPPORTUNITIES FOR COOPERATION



# REFERENCE PROJECTS



Fraunhofer IMS is interested in European research activities under Horizon 2020, ECSEL, Eurostars or similar funding opportunities. Here are some examples for possible cooperation with us:

## **SU-TDS-02-2018**

**Toolkit for assessing and reducing cyber risks in hospitals and care centres to protect privacy/data/infrastructures | Deadline 04/2018**

- Integrated hardware-based security for medical devices
- Enhanced privacy of medical data and reduced risks for device malfunction due to unauthorized access

## **SU-INFRA01-2018-2019-2020 / SU-BES-02-2018-2019-2020**

**Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe / Technologies to enhance border and external security |**

**Deadline 08/2018 or 08/2019**

- Infrastructure monitoring with low-power wide-area networks, e.g. for power converters and overhead lines
- High-sensitivity vibration sensors for detection of physical attacks
- LIDAR sensors for object detection
- High dynamic, high resolution uncooled infrared camera

## **DT-ICT-10-2018-19**

**Interoperable and smart homes and grids |**

**Deadline 11/2018**

- Smart home energy management by energy disaggregation using nonintrusive load monitoring (NILM) and machine learning (AI) techniques
- Energy self-sufficient wireless sensor technology
- Living lab facilities for development and evaluation in elderly care and smart homes scenarios

## **LC-MG-1-5-2019**

**Advancements in aerodynamics and innovative propulsion systems for quieter and greener aircrafts |**

**Deadline 01/2019**

- High-temperature electronics and sensors for aircraft applications

## **ICT-09-2019-2020 / ICT-10-2019-2020**

**Robotics in Application Areas / Robotics Core Technology |**

**Deadline 03/2019**

- Automatic handling and RFID based lifecycle management of sterile assets, e.g. for surgical instruments in hospitals
- LIDAR or infrared sensors for human-robot interaction

## POC-ID

**Platform for ultra-sensitive Point-of-Care diagnostics for Infectious Diseases**

This multidisciplinary project aims to develop a novel point-of-care device for detection of respiratory infectious viral diseases in newborns. The PoC-ID device will combine the detection of both host and pathogen biomarkers in the same sample, such as blood and nasopharyngeal aspirate.

Fraunhofer IMS is developing a molecular mass sensitive piezoelectric flexural plate wave BioMEMS sensor – including design, fabrication and characterization of the sensor as well as readout electronics' concept and preliminary biochemical experimental setup.

PoC-ID is a Research and Innovation Project funded by the European Union within the Horizon 2020 Programme, Grant no. 634415.



## UTOFIA

**Underwater Time Of Flight Image Acquisition system**

UTOFIA will offer a compact and cost-effective underwater imaging system for turbid environments. Using range-gated time-of-flight imaging the system will extend the imaging range by factor 2 to 3 over conventional video systems. At the same time, the system will provide video-rate 3D information. For this project Fraunhofer IMS has designed, fabricated and tested a time-of-flight imaging sensor with QVGA resolution.

This will fill the current gap between short-range, high-resolution conventional video and long-range low-resolution sonar systems. UTOFIA offers a new modus operandi for the main targeted domains of application: marine life monitoring, harbor and ocean litter detection, fisheries and aquaculture stock assessment, and seabed mapping.

This project has received funding from the European Union's Horizon 2020 Programme, Blue Growth, Grant no. 633098.

