



Fraunhofer
IMS

**Fraunhofer Institute for Microelectronic
Circuits and Systems IMS**

**European Research
Activities**

Short Profile

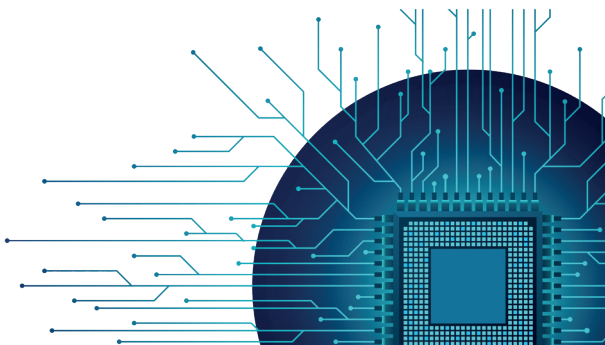
Smart Sensor Systems for a Safe, Secure and Sustainable Future

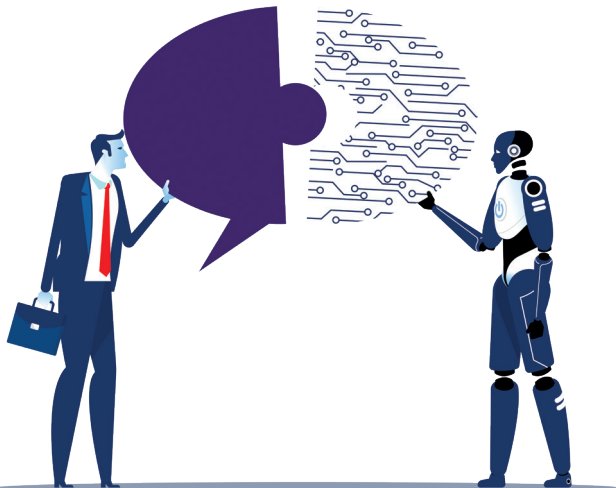
In everyday life, microelectronic systems accompany us everywhere – in our smartphones, in satellites that transport our signals and ensure faster Internet or during our health checks, to support diagnosis or ensure smooth routes in cars, production and in public transportation and buildings.

The Fraunhofer Institute for Microelectronic Circuits and Systems IMS develops customized solutions in four business units:

- Health
- Industry
- Mobility
- Space & Security

We have multiple technologies to offer for your requirements in the fields of **biomedical sensor systems, optical imagers**, such as **LiDAR detectors, RISC-V processors** and **open hardware architectures, AI software frameworks** or even **quantum technology** to create customized solutions.





Opportunities for Cooperation

Fraunhofer IMS is active in European research activities under Horizon Europe (HE), KDT, Eurostars or similar funding opportunities. Here are some examples for possible cooperation with us:

KDT, Xecs & HE Cluster 4 Digital

- MEMS sensor development and fabrication
- Post-CMOS and 3D integration of MEMS
- Trustworthy electronics and trusted embedded AI
- Embedded AI on resource-restricted devices

Eurostars & EUREKA

- R&D experience for SMEs

HE Cluster 2 Health

- Contactless vital parameter measurement
- Multi-sensor implants for closed-loop diagnostics
- Smart biosensors for point-of-care diagnostics

HE Cluster 4 Industry

- Robust solutions for 3D vision in human-machine interaction
- AI for health monitoring and predictive maintenance
- Real-time process optimization towards energy efficiency

HE Cluster 4 Space, European Defense Fund & ESA Calls

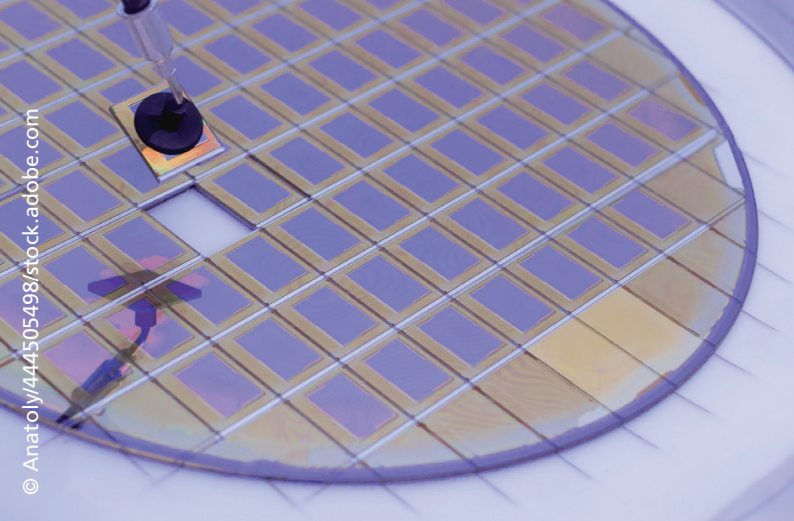
- Development and fabrication of optical and infrared detectors
- Sensor solutions for observation, detection, and surveillance
- Experience in design for space and harsh conditions

HE Cluster 5 Mobility

- LiDAR Target Emulator – testing systems for autonomous driving
- RISC-V and embedded AI for functional safety

HE Cluster 5 Energy

- Infrastructure monitoring with low-power wide-area networks
- Non-invasive Industry 4.0 retrofits for condition monitoring



Project Applause

Advanced packaging for photonics, optics, and electronics for low-cost manufacturing in Europe

APPLAUSE



APPLAUSE will provide new tools, methods, and processes which are piloted in six use cases – related to automotive, production, medical, consumer, and communication applications.

Fraunhofer IMS is developing innovative MEMS technology for two use cases: biocompatible encapsulation for miniaturized cardiac implants as well as microbolometers for low-cost and high-performance thermal infrared sensors for applications in automotive, safety and security.

With the broad consortium of more than 30 leading experts, APPLAUSE will take the European expertise in advanced packaging and assembly to a new level.

This project has received funding from the ECSEL JU under grant agreement No 826588.

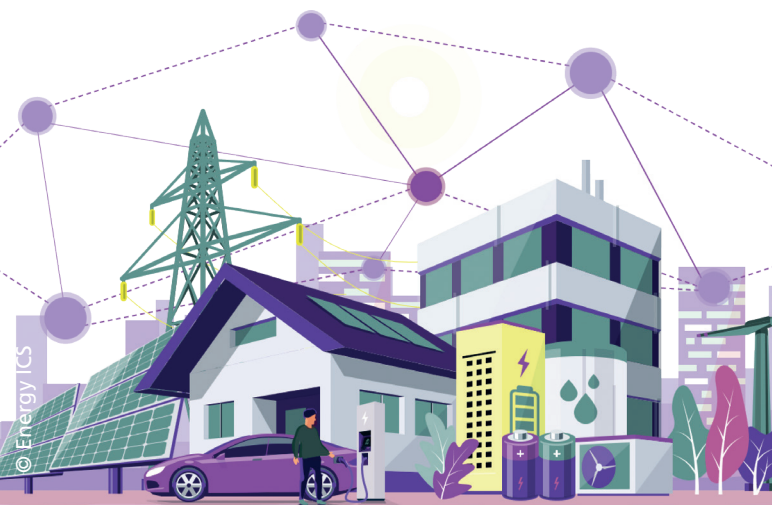
Project Energy ECS

Smart and secure energy solutions for future mobility and green-energy transition

Energy ECS (Electronics, Components, Systems) is a large consortium project. Aiming to advance e-mobility is a key part of the green energy transition. The consortium of 30 partners develops a set of technologies to improve the digitalization of e-mobility systems and related energy solutions. The project's six use cases cover different angles on future mobility and energy. Based on long-standing experience in energy-autonomous and wireless sensor systems, Fraunhofer IMS develops machine learning and AI methods to optimize and extend the functional range of such systems.

This project has received funding from the ECSEL Joint Undertaking (JU) under grant agreement No 101007247.

**ENERGY
ECS** 





**Forschungsfabrik
Mikroelektronik**
Deutschland

Service & Technologies

Fraunhofer IMS supports you from the design up to pilot fabrication of application-specific integrated circuits. Our living labs at the Fraunhofer-inHaus-Center provide nearby facilities for evaluation of concepts and demonstrators:
www.inhaus.fraunhofer.de/en.html

In our cleanrooms for 200 mm wafer processing, we realize intelligent single-chip microsystems by complementing CMOS wafers with additional structures and functionalities.

As part of »Forschungsfabrik Mikroelektronik Deutschland«, the global driver of innovation and biggest R&D cooperation across different sites for microelectronics in Europe, Fraunhofer IMS has been enabled to develop and realize »More Than Moore« CMOS ASICs and MEMS devices and sensors.

Contact

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