Leistungszentrum
mikro I nano

HIGH PERFORMANCE CENTER "FUNCTIONAL INTEGRATION IN MICRO- AND NANOELECTRONICS"

PRESS RELEASE

Fraunhofer Executive Board confirms continuation of the Micro/Nano Performance Center

Technological sovereignty to counter micro-chip shortage: combining expertise in research and development for microelectronics in Saxony

The economic consequences of the current chip shortage highlight the importance of microelectronics. In order to prepare for the future, technological sovereignty in microelectronics research and development is required, in addition to new production facilities in Europe. This is precisely the challenge that the High Performance Center "Functional Integration for Micro-/Nanoelectronics" is addressing. It combines the competencies of four microelectronics institutes of the Fraunhofer-Gesellschaft as well as of research groups at universities in Dresden and Chemnitz. This way, the center offers a whole spectrum of microelectronics and micromechanics technologies to both major players in the microelectronics industry and small and medium-sized enterprises (SMEs). SMEs in particular can profit from a low-threshold service through the provision of technology platforms, which allows them to benefit from leading edge technology without the burden of excessively high development cost.

Following a decision by the Executive Board of the Fraunhofer-Gesellschaft, the High-Performance Center "Functional Integration for Micro/Nanoelectronics" (High-Performance Center Micro/Nano) is being funded for another three years. In order to strengthen its transfer activities, the center will receive annual funding of €1 million from the Fraunhofer Society for the period from 2022 to 2024. The High Performance Center will be evaluated continuously and, if the evaluation result is positive, follow-up funding will be provided for a next three-year period. In other words, continuity follows success - a guiding principle of many activities of the Fraunhofer-Gesellschaft.

In the years 2016-2021, the High Performance Center developed cross-institutional technology platforms, an activity which was supported by project funding by the Free State of Saxony. In the phase of continuation and stabilization that has started now, the focus will be increasingly on the transfer to industry by offering research and development services using these technology platforms. In this context, the High Performance center has created new forms of digital presentation, such as a virtual showroom.

Editor
Franka Balvin | Fraunhofer Institute for Photonic Microsystems IPMS | Phone +49 351 8823-1144 |
Maria-Reiche-Str. 2 | 01109 Dresden | Germany | www.ipms.fraunhofer.de | franka.balvin@ipms.fraunhofer.de

"The High Performance Center Micro/Nano has established itself as a valuable partner for industry and is systematically transfering new research results to innovative product development and applications," says the coordinator of the High Performance Center Micro/Nano Prof. Dr. Hubert Lakner from Fraunhofer Institute for Photonic Microsystems IPMS. A thematic focus of the center's transfer offer are technologies for integrated multi-sensor networks for the Industrial Internet of Things (IIoT). Furthermore, the High Performance Center offers a transfer platform for the development and use of micromechanical ultrasonic transducers (MUT) as well as a technology platform for the processing and wafer-level packaging of 300 mm wafers. The services offered to industrial customers range from classic contract research to the provision of demonstrators and prototypes to pilot production.

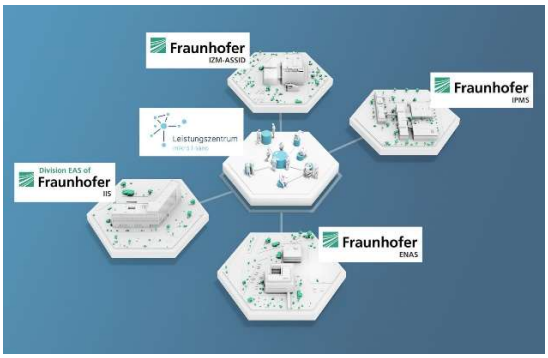
High Performance Centers - research transfer via effective innovation ecosystems

High Performance Centers were established as a joint effort of Fraunhofer institutes, universities and other non-university research institutes targeting efficient transfer of excellent applied research to industry partners. These centers have clear topical as well as geographical focus, i.e. the participating research partners are located within the same region of Germany.
The High Performance Center "Functional Integration in Micro- and Nanoelectronics" combines the capabilities of the Fraunhofer Institutes IPMS, ENAS, IIS-EAS and IZM-ASSIS, which are well aligned along the value chain of microelectronics and microsystems R&D. Additionally, these competences are complemented by the expertise of research groups at the Technische Universität Dresden (Dresden University of Technology), Technische Universität Chemnitz (Chemnitz University of Technology), and the Hochschule für Technik und Wirtschaft Dresden (Dresden University of Applied Sciences). The High Performance Center employs its portfolio of competences to address R&D segments of high relevance for our industry partners, such as:

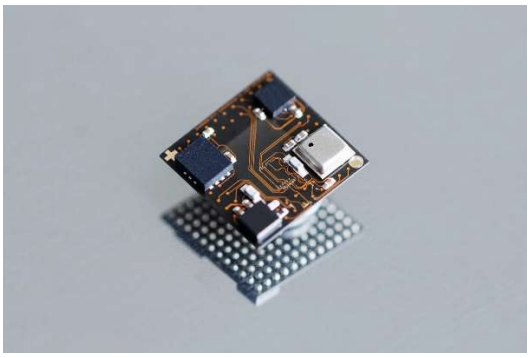
- Novel materials to enable new functionalities
- Modular heterogeneous wafer systems
- Technology platform for ultrasonic sensors
- Integrated spectrometers and other optical systems employing nanostructured materials
- Sensors and actuators for integration into machine tools.

This High Performance Center offers application- and customer-specific development as well as small series production of components, integrated circuits and system-in-package (SiP-) solutions for sensors and actuators. Cross-institutional use of R&D-expertise and –infrastructure enables systems solutions and demonstrators for sensors and actuators targeted at e.g. "Industry 4.0" applications, such as the Industrial Internet of Things (IIoT).

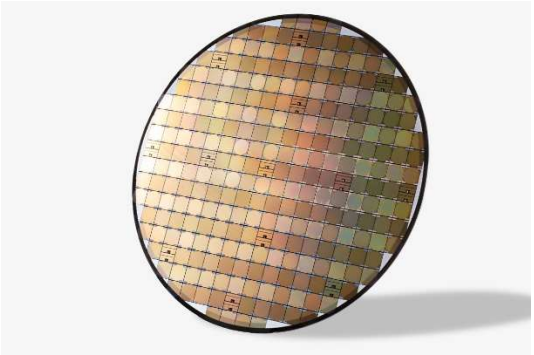
Images



The High Performance Center Micro/Nano combines competencies of the core institutes Fraunhofer IPMS, ENAS, IIS-EAS and IZM-ASSID
©Fraunhofer IPMS



Universal sensor platform (USEP) for Industrial IoT developed by the High Performance Center
© Fraunhofer IIS



Wafer with micromechanical ultrasonic transducers
© Fraunhofer IPMS