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The “Research Fab Microelectronics Germany” gets off the ground

To reinforce the position of Europe’s semiconductor and electronics industry within global competition, eleven institutes within the Fraunhofer Group for Microelectronics have, together with two institutes within the Leibniz community, come up with a concept for a cross-location research factory for microelectronics and nanoelectronics. The Federal Ministry of Education and Research (BMBF) is providing support with the necessary investment. On April 6, 2017, Education Minister Professor Johanna Wanka handed over the grant approvals – 280 million euros for Fraunhofer and 70 million euros for Leibniz.

Research and development across several locations for the first time

For more than 20 years, the Fraunhofer institutes within the Group for Microelectronics and the Leibniz institutes have supported German industry with application-oriented research and development for high-tech products. In order to be able to offer even smaller companies top technology under optimum conditions, eleven Group institutes*, as well as the Leibniz Institute for Innovative Microelectronics (IHP) in Frankfurt/Oder and the Ferdinand Braun Institute, Leibniz Institute for Maximum-frequency Technology (FBH), in Berlin will combine their technology research into a joint, cross-location technology pool called the “Research Fab Microelectronics Germany,” and expand on it. The institutes’ existing locations will be retained, while expansion and operation will be coordinated and organized in a shared business office. The aim is to be able to offer customers from large industry, small and medium enterprises, and universities the entire value chain for microelectronics and nanoelectronics in an uncomplicated manner and from a single supplier.

Pooled expertise bundled in four technology parks

The focus of the cross-institute work will lie on four future-relevant areas of technology – “Silicon-based technologies,” “Compound semiconductors and special substrates,” “Heterointegration,” and “Design, testing and reliability.” Having a knowledge edge in these areas is one of the basic prerequisites for important areas of application and will provide Germany and Europe with the necessary clout among international competition. Thematically and logistically connected processes and infrastructures will be pooled, organized, and developed in each of these technology parks, as they will be known. This will allow the member institutes, together, to serve all areas of technology

Editorial Notes

Janis Eitner | Fraunhofer-Gesellschaft, Munich | Communications | Phone +49 89 1205-1333 | presse@zv.fraunhofer.de

Akvile Zaludaite | Fraunhofer Group for Mikroelektronik | Phone +49 30 688 3759-6101 |

Anna-Louisa-Karsch-Strasse 2 | 10178 Berlin | www.mikroelektronik.fraunhofer.de | akvile.zaludaite@mikroelektronik.fraunhofer.de

that are essential to the research, development, and (pilot) manufacture of microsystems and nanosystems – whether it is for information gathering and processing, telecommunications, or power electronics. New jobs will also be created: The Micro-electronic Fab for Research Germany will represent a reorganization of more than 2000 scientists and the necessary equipment for technological research and development under a single, virtual roof. In the medium term, the measure is expected to create an additional 500 jobs for highly qualified candidates.

Research for the future

The funding from the Federal Ministry of Education and Research (BMBF) is a measure that accompanies the “Important Project of Common European Interest” (IPCEI) for microelectronics that has been applied for at the European level. The Federal Ministry for Economic Affairs and Energy intends to use this project to strengthen Germany’s semiconductor industry for the next product generations. While the IPCEI is focused on expanding industrial production capacities, the Fraunhofer-Gesellschaft, in cooperation with the Leibniz Institutes IHP and FBH, will use the Research Fab Microelectronics Germany to provide the accompanying research and development. The activities will cover both contemporary topics such as FDSOI technology (Fully Depleted Silicon on Insulator) and power electronics and future themes such as creating the technological basis for the industrial use of quantum technologies, integration of functional blocks at the atomic level, developing systems for the THz range, continued reduction in power requirements, and the storage and transmission of huge quantities of data (petabytes).

The establishment of the Research Fab Microelectronics Germany will be a unique offering available to the German and European semiconductor and electronics industry. The cooperation of a total of 13 research institutes and more than 2000 scientists is already the world’s largest pool for technologies and intellectual property rights within the area of smart systems. This new form of cooperation will make a major contribution to strengthening European industry’s competitiveness internationally.

* Fraunhofer Research Institution for Microsystems and Solid State Technologies EMFT, Fraunhofer Institute for Electronic Nano Systems ENAS, Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, HHI, Fraunhofer Institute for Applied Solid State Physics IAF, Fraunhofer Institute for Integrated Circuits IIS, Fraunhofer Institute for Integrated Systems and Device Technology IISB, Fraunhofer Institute for Microelectronic Circuits and Systems IMS, Fraunhofer Institute for Photonic Microsystems IPMS, Fraunhofer Institute for Silicon Technology ISIT, Fraunhofer Institute for Reliability and Microintegration IZM

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After handing over the grant approvals issued by the Federal Ministry of Education and Research (L-R): Prof. Matthias Kleiner, President Leibniz Association, Prof. Bernd Tillack, Institute Director Leibniz Institute for Innovations for High Performance Microelectronics (IHP), Dr. Reinhard Ploss, CEO of Infineon AG, Prof. Johanna Wanka, Federal Research Minister, Prof. Reimund Neugebauer, President Fraunhofer-Gesellschaft, Prof. Hubert Lakner, Chairman Fraunhofer Group for Microelectronics, Prof. Günther Tränkle, Institute Director Ferdinand Brauns Institute, Leibniz-Institut für Höchstfrequenztechnik (FBH). © Fraunhofer Microelectronics / A. Grützner

The **Fraunhofer-Gesellschaft** is the leading organization for applied research in Europe. Its research activities are conducted by 69 institutes and research units at locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of 24,500, who work with an annual research budget totaling 2.1 billion euros. Of this sum, 1.9 billion euros is generated through contract research. More than 70 percent of the Fraunhofer-Gesellschaft's contract research revenue is derived from contracts with industry and from publicly financed research projects. International collaborations with excellent research partners and innovative companies around the world ensure direct access to regions of the greatest importance to present and future scientific progress and economic development.