Press Release

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Leibniz Institute for high performance microelectronics

IHP conducts cutting-edge research in the field of the 6G data network

BMBF funds the establishment of four research hubs for research into the future technology 6G with up to 250 million euros

Frankfurt (Oder). The Federal Ministry of Education and Research (BMBF) has selected four hubs nationwide to research the future technology 6G, in which around 50 research partners will participate from August 2021. They will lay the foundation for the 6G research initiative launched by the BMBF in Germany and will be supported with up to 250 million euros.

The 6G Hubs are based on the scientific excellence of outstanding research institutes and universities and aim to combine national research activities to lay the technological foundations for future mobile phone generations. The focus is on the technologies and key components that are invented and manufactured in Germany and Europe. Experts from all technology levels will contribute to the application of new materials, the development of components such as antennas and amplifiers, as well as complete modules, network control and the software for 6G components. The aim is to bundle the outstanding expertise on wireless transmission and fiber-optic line-based systems.

The Leibniz Institute for high performance microelectronics (IHP) is involved in the research hubs 6G Research and Innovation Cluster-Hub (6G-RIC) and Open-6G-Hub as a project partner.

The 6G RIC Hub, funded with 70 million, aims to develop mobile radio systems with open interfaces across all technology boundaries. The focus is on the development of a high-performance test infrastructure, which should enable the testing of new technology components under realistic and open conditions in order to accelerate the direct exploitation and to support the development of a new ecosystem in the medium term.

The content of the Open-6G-Hub is the investigation and design of a holistic 6G system that is resource-efficient and energy-efficient, ensures the protection of personal data and can guarantee high network availability. Fields of application with very high demands on the quality and security of communication technology are considered, which will be characterized by 6G for the world from 2030 onwards: highly networked production, future mobility scenarios, new learning worlds, personalized medicine and the interaction of humans with a variety of autonomous vehicles and devices. In the foreseeable future, 6G will also play a key role in accelerated digitization for the purpose of sustainability and the implementation of climate policy goals. For this reason, the Open-6G-Hub examines satellite connections, for example, in order to supply rural areas equally. The technological focus is on the use of artificial intelligence (AI) to increase the efficiency of communication networks and support mobile AI-based services. The funding amount for the hub is 68 million euros.

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"In recent years, the IHP has contributed significantly to the development and definition of the architecture and standards of 5G as part of the European 5GPPP initiative. The experience gained as well as the technologies and components developed form an excellent basis for helping to shape the 6th generation of mobile communications (6G). The ability to develop and manufacture our own high-performance chips and systems is an important contribution to achieving Europe's technological sovereignty," says Prof. Gerhard Kahmen, managing director and project leader of the 6G-RIC-Hub/Module 1 at the IHP.

The digital sovereignty of wireless communication technologies is crucial to ensure data security and open up world market opportunities in the digitalization of various industries. 6G technology will be the high-performance data technology of the future and will revolutionize our communications once again in the next decade. It will allow us to transmit data more than 100 times faster than with 5G, while increasing energy efficiency and resilience.

The 6G initiative launched by the BMBF to research innovative communication technologies will be funded with 700 million euros over the next five years.

Further information:
https://www.bmbf.de/de/karliczek-wir-wollen-bei-6g-an-der-spitze-sein-14820.html;
https://newsletter.fraunhofer.de/-viewonline2/17386/609/3/6RFhct0v/GTx4PVIRMZ/1;
https://www.dfki.de/web/news/detail/News/open6ghub-foerderung-bmbf/

Innovative communication technologies

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About IHP:

The IHP is an institute of the Leibniz Association and conducts research and development of silicon-based systems and ultrahigh frequency circuits and technologies including new materials. It develops innovative solutions for application areas such as wireless and broadband communication, security, medical technology, industry 4.0, automotive industry, and aerospace. The IHP employs approximately 350 people. It operates a pilot line for technological developments and the preparation of high-speed circuits with 0.13/0.25 µm SiGe BiCMOS technologies, located in a 1500 m² DIN EN ISO 14644-1 3 certified clean room.

www.ihp-microelectronics.com

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