Press Release

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IHP's essential participation in developing high performance 5G wireless technologies

Third Horizon 2020 EU-project within the 5G-framework coordinated by IHP

Frankfurt (Oder). The project 5G-VICTORI, which will be coordinated by IHP – Innovations for High Performance Microelectronics was positively evaluated by the European Commission and is currently in preparation for starting in June 2019. The project belongs to the 5G Infrastructure Public Private Partnership (5G PPP), a joint initiative between the European Commission and the European ICT industry. "Within that initiative IHP has reached a noteworthy success, with the three coordinated projects 5G-XHaul, 5G-PICTURE and 5G-VICTORI and being partner in the project 5GENESIS", stated Prof. Eckhard Grass, leader of the group "Wireless Broadband Communications" at IHP. 5G-VICTORI will start in June 2019, with the kick-off meeting planned in Berlin. The project has 25 partners and runs for three years.

The 5G vision spans beyond the evolution of mobile broadband. It is seen as an enabler of the future digital world that will support the transformation of all economic sectors and the growing consumer market demand. One key goal of 5G is to offer services to new industrial stakeholders (referred to as vertical industries), and to support new business models and opportunities. This vision introduces the need to transform traditionally closed, static and inflexible network infrastructures into open, scalable and flexible ecosystems that can support a large variety of dynamically changing applications and services. **5G-VICTORI** will conduct large scale trials for advanced vertical use case verification focusing on *Transportation*, *Energy*, *Media* and *Factories of the Future* and cross-vertical use cases. "Together with Deutsche Bahn and Fraunhofer FOKUS, we want to establish a 5G testbed at one of the major railway stations in Germany. It leverages 5G network technologies developed in the projects 5G-XHaul, 5G-PICTURE and 5GENESIS, and exploits extensively existing facilities of a test-bed in a Pan-European Infrastructure.", describes Dr. Jesús Gutiérrez, Project Leader at IHP. The platforms to be exploited in 5G-VICTORI will be open environments where resources and functions are made available to ICT and vertical industries. These functions can be accessed, shared on demand and deployed to compose very diverse sets of services in a large variety of ecosystems. The 5G-VICTORI consortium brings together major players from ICT, including operators, equipment vendors, academic and research organisation and SMEs. Moreover, main players from vertical industries, including nationwide rail and electricity operators, rail technology vendors, media content delivery players and a number of SMEs focusing on advanced vertical services, are also part of the consortium.

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A previous project, also coordinated by IHP was **5G-XHaul**. Its purpose was to help ensure that every smartphone user has a reliable, uninterrupted and very high speed network connection by addressing a converged transport network in a single infrastructure. The project also aimed to find novel solutions to the growing demand for broadband connections. To meet this demand, cost-effective yet powerful networks had to be developed and one of 5G-XHaul's main goals was on ensuring inner city areas, stadiums, airports and other transport hubs are connected to the core telecommunications network with dynamically adaptive communication. It also supports mass events where peaks in demand are likely and dynamic allocation of resources is, therefore, necessary to efficiently meet the quality requirements of the end-users. A city-wide field trial, carried out in the city of Bristol, integrating the novel 5G-XHaul optical and wireless technologies, showcased the overall project architecture and demonstrated the adaptability of the network to changes.

The second project coordinated by IHP that falls within the 5G framework is **5G-PICTURE**, which will develop and demonstrate a converged fronthaul and backhaul infrastructure integrating advanced wireless and novel optical network solutions. To address the limitations of current approaches, 5G-PICTURE will exploit flexible functional access points that can be dynamically selected, to optimise resource and energy efficiency.

The crucial step in the "Genesis of 5G" is to integrate all these highly diverse results and technologies in order to "glue together" the 5G picture and unveil the potential of a truly full-stack, end-to-end 5G platform, able to meet the defined performance targets. In this context, the main goal of **5GENESIS** is to validate 5G performance for various 5G use cases, in both controlled set-ups and large-scale events. IHP is partner in this project.

All these projects fall within **Horizon 2020,** the biggest EU research and innovation programme ever, with nearly 80 EURO billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market.

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5G-VICTORI will conduct large scale trials for advanced vertical use case verification focusing on Transportation, Energy, Media and Factories of the Future and cross-vertical use cases.
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5G PPP
The 5G Infrastructure Public Private Partnership

Horizon 2020

Further information:
Horizon2020: https://ec.europa.eu/programmes/horizon2020/en
5G-PPP: https://5g-ppp.eu/
5G-XHaul: https://www.5g-xhaul-project.eu/
5G-PICTURE: https://www.5g-picture-project.eu/
5GENESIS: https://5genesis.eu/

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About IHP:
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. IHP employs approximately 300 people. It operates a pilot line for technological developments and the preparation of high-speed circuits with 0.13/0.25 µm BiCMOS technologies, located in a 1000 m² class 1 cleanroom.

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