Press Release

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innovations
for high
performance
microelectronics

Faster, smaller and more complex

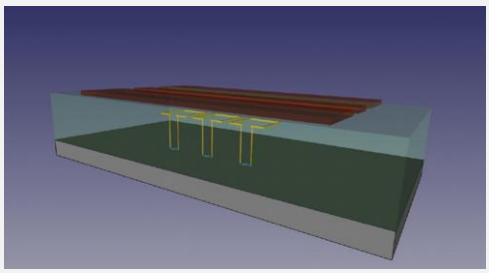
Development of innovative technologies for beam steering of communication antennas

Frankfurt (Oder). With the constant increase in data volumes, wireless communication and mobility lead to ever greater demands on electronic systems. In order to meet these requirements, complex, powerful, hardware-based high-frequency components are required, including with the essential function of beamforming, the spatial control of the antenna directivity to increase the capacity of a communication system or to improve the power efficiency.

The EU-funded joint project SMARTWAVE started with a virtual kick-off event on September 16, 2020 with the aim of further developing a main component of every beamforming system, the so-called phase shifter, using innovative technologies. The project partners of the Leibniz Institute for Innovative Microelectronics (IHP) are THALES SA / France, TAIPRO Engineering SA / Belgium, RF Microtech SRL / Italy and the Foundation for Research and Technology Hellas / Greece.

Over the next two years, the project work will develop the prototype of a phase shifter based on the combination of a III-V-based component used in a phased array antenna for Satcomm and / or radar applications as well as in an advanced 140 GHz Radar chipset with SiGe BiCMOS technology is included. A novel approach to phase shifting, based on so-called reconfigurable metamaterials, promises novel technologies for phase shifters with excellent performance properties, higher speed and reduced power consumption.

With the bundled high-tech know-how of the project partners and the technical expertise in the manufacture of radar modules with III-V materials, the aim is to achieve rapid commercialization for radar and Satcomm systems.



SMARTWAVE project© IHP

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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 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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