

# Pressemitteilung

19.10.2020

## 5G was yesterday IHP team of scientists receives Best Paper Award

**Frankfurt (Oder).** While work is currently only being carried out on the introduction of 5G networks and many people have not even heard of 6G networks, research is already looking for solutions to open up frequency bands above 100GHz in order to meet the demand for high data rates.

The scientists at the IHP GmbH - Innovations for High Performance Microelectronics are also working intensively on researching new, high frequency bands in the sub-terahertz spectrum (30-300 GHz), where large areas of unused bandwidths can still be found. Nebojsa Maletic's team has now been honored with one of the three "Best Paper Awards" in the microwave theory and technology category at the IEEE MTTW2020 in Riga for their work.

The employees of the System Architectures and Circuit Design departments developed and implemented a short-range wireless connection with a carrier frequency of 240 GHz. With highly integrated transmitters and receivers as well as on-chip antennas, which were developed and manufactured using the IHP's 130 nm SiGe technology, data rates of up to 14 Gbit / s could be demonstrated. Moderate symbol rates (of 2 Gbaud), which are possible with commercially available hardware, could be used. They also discussed the prospects for a further increase in data rates through channel combinations and the use of LOS-MIMO (Line-of-Sight-Multiple-Input-Multiple-Output) procedures. This means that data rates of well over 100 Gbit / s can be achieved in the future. Such systems will form an important technical basis for the 6th generation of mobile communications (6G).

Nebojsa Maletic received his Master of Science Electrical Engineering degree from the Faculty of Electrical Engineering of the University of Belgrade, Serbia in 2010. Before joining the IHP, he worked as a teaching and research assistant at the Faculty of Electrical Engineering at Banja Luka University in Bosnia-Herzegovina. Since 2015 he has been a member of the Wireless Broadband Communication Group at the IHP GmbH in Frankfurt (Oder). He took part in several European H2020 projects (5G-XHaul, 5G-PICTURE, 5GENESIS, 5G-VICTORI) and BMBF research projects. His current research interests are in the design of high-speed wireless communication systems in the millimeter wave spectrum.



Nebojsa Maletic© IHP



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## **Über das IHP:**

Das IHP ist ein Institut der Leibniz-Gemeinschaft und betreibt Forschung und Entwicklung zu siliziumbasierten Systemen, Höchstfrequenz-Schaltungen und -Technologien einschließlich neuer Materialien. Es erarbeitet innovative Lösungen für Anwendungsbereiche wie die drahtlose und Breitbandkommunikation, Sicherheit, Medizintechnik, Industrie 4.0, Mobilität und Raumfahrt. Das IHP beschäftigt ca. 300 Mitarbeiterinnen und Mitarbeiter. Es verfügt über eine Pilotlinie für technologische Entwicklungen und die Präparation von Hochgeschwindigkeits-Schaltkreisen mit 0,13/0,25 µm-BiCMOS-Technologien, die sich in einem 1000 m<sup>2</sup> großen Reinraum der Klasse 1 befindet.

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