Press Release

November 25, 2020

innovations
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Ultra HD 4K movies download at ultra high speed

Young scientist Dr. Lukasz Lopacinski selected by the IHP for the Emmy Noether program of the DFG

Frankfurt (Oder). For his outstanding research achievements, Dr. Lukasz Lopacinski, scientist at the Leibniz Institute -Innovations for High Performance Microelectronics (IHP), qualify for the Emmy Noether program of the German Research Foundation (DFG). This enables young academics to qualify for a university professorship over a period of six years by independently leading a group of young researchers.

The research project of Mr. Lopacinski made possible as part of the program aims to enable a modular architecture for ultra-fast wireless communication for cell phones and other 5G or 6G-capable devices (e.g. tablets, laptops). The main goal is to provide wireless connections at speeds of 100 Gb / s. Such very high data rates make it possible, for example, to download a 90-minute film in Ultra HD 4K quality in just one second. An important challenge is reducing the energy consumption of the 100 Gb / s communication chips. This is the only way to integrate them into small, battery-operated mobile devices such as smartphones. On the other hand, the high available data rate and extremely low latency enable complex and time-critical functions and applications to be relocated to the cloud. Computing and storage capacities can be used more economically and more efficiently, which in turn can have a positive effect on the battery life of mobile devices.

Together with his junior research group, Mr. Lopacinski strives to achieve excellent research results in the project in order to further strengthen the position of the IHP in the field of wireless ultra-high-speed communication and to support the acquisition of further important projects.

Dr. Lukasz Lopacinski received his Master of Science (M.Sc.) degree in computer science from the West Pomeranian Technical University of Stettin, Poland, in 2009 and his doctorate from the Brandenburg Technical University of Cottbus-Senftenberg in 2017. He then worked at lesswire AG in Berlin in the field of wireless communication. From 2013 to 2016 he worked as a research assistant at the Brandenburg Technical University Cottbus-Senftenberg. Since 2016 he has been working at the IHP in the “System Architectures” department (formerly “System Design”) and researches wireless high-speed communication.

IHP GmbH • Innovations for High Performance Microelectronics | Leibniz-Institut für innovative Mikroelektronik
Im Technologiepark 25 • 15236 Frankfurt (Oder) • Tel.: +49 335 5625 0 • E-Mail: ihp@ihp-microelectronics.com

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IHP scientist Dr. Lukasz Lopacinski © IHP

Contact:
Katja Werner
Public Relations
IHP GmbH - Innovations for High Performance Microelectronics/
Leibniz-Institut für innovative Mikroelektronik
Im Technologiepark 25
15236 Frankfurt (Oder)
Fon: +49 (335) 5625 206
E-Mail: werner@ihp-microelectronics.com
Website: www.ihp-microelectronics.com

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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