

Latest Developments on SiGe BiCMOS Technologies with “More-than-Moore” Modules for mm-wave and THz Applications

Talk by Dr.-Ing. Mehmet Kaynak, IHP Leibniz-Institut für innovative Mikroelektronik, July 20th, 2:00 p.m., Room 342 (IPQ library), Building 30.10

In last decade, SiGe BiCMOS technologies open a new cost-efficient market at mm-wave frequencies. Starting with the commercial use of automotive radars at 77 GHz, the market now has a strong interest on radar, sensor and imaging products at mm-wave and sub-THz frequencies. The latest developments on SiGe HBTs with f_{max} of beyond 700 GHz boosts the research and development effort on circuit and system area to take share from the new market. In parallel to the developments on SiGe HBT performance, “More-than-Moore” path, which covers all the additional functionalities to the standard CMOS process (i.e. MEMS devices, microfluidics, photonics, heterogeneous integration, etc...), allows to realize multi-functional circuits and systems.

In this talk, the latest developments regarding the high-speed devices and circuits based on SiGe HBTs at IHP will be discussed. The “More-than-Moore” modules for multi-functional device and circuits will also be one of the core topic of discussion.



Dr.-Ing Mehmet Kaynak received his B.S degree from Electronics and Communication Engineering Department of Istanbul Technical University (ITU) in 2004, took the M.S degree from Microelectronic program of Sabanci University, Istanbul, Turkey in 2006 and received the PhD degree from Technical University of Berlin, Berlin Germany in 2014. He joined the technology group of IHP Microelectronics, Frankfurt (Oder), Germany in 2008. From 2008 to 2015, he has led the MEMS development at IHP. Since 2015, he is the department head of Technology at IHP. Dr. Kaynak is being affiliated as Adjunct Professor at Sabanci University, Turkey.

