

Workshop speaker	
Full Name	Stefan Lischke
Affiliation	IHP
Presentation Title	Monolithic photonic BiCMOS technology: Enabler for high-speed transceiver applications
Biography	
<p>Stephan Lischke received the B.Sc. and M.Sc. degrees in Physics with specialization in Semiconductor Technology from the Technical University Brandenburg, Cottbus in 2005 and 2007, respectively. He is currently a Researcher in the Silicon Photonics group within the Technology department of IHP, Frankfurt (Oder), Germany. His current work is focused on Germanium photo detectors and the integration of photonic devices into IHP's photonic BiCMOS process. He received the Ph.D. degree in physics from Technical University Berlin in 2017.</p>	
200 words abstract	
<p>Photonic-electronic integration is a key technology to master data traffic growth and therefore an enabler of future network technologies. For some time now, a novel silicon-based photonic-electronic integration technology, photonic BiCMOS, is under development at IHP. Photonic BiCMOS is a planar technology co-integrating monolithically on a single substrate high-speed RF frontend electronics with high-speed photonic devices such as broadband germanium detectors, modulators, and SOI nano-waveguide integrated optics. High RF capability of this electronic photonic integrated circuit (ePIC) technology is enabled by SiGe heterojunction bipolar transistors (HBTs), which are integrated with 0.25μm CMOS. This talk reviews the integration approach deployed in the photonic BiCMOS and discusses performance issues for both, electronic and photonic devices. Measures to overcome detrimental integration effects will be discussed. Examples of transmitter and receiver demonstrators are presented to indicate the potential for monolithically integrated high-speed transceivers at 1550 nm.</p>	