

**SEMICON<sup>®</sup>**  
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## **TechARENA: MedTech**



M. Kaiser  
Senior Manager Business Development  
SEMI Europe, SEMI Europe, Berlin, Germany



### **Biography**

After his studies of Industrial Engineering Michael Kaiser started his career in 2015 as Product and Quality Engineer at NXP Semiconductors in Hamburg, Germany.

In 2009 he moved to NXP Hong Kong as Innovation Manager with focus on backend manufacturing and packaging.

3 years later Michael Kaiser took over the role as Sector Manager Microelectronics for the City of Dresden in Europe's leading cluster for Microelectronics.

In parallel he worked as Project Manager for the Silicon Europe initiative as part of the Silicon Saxony Management GmbH.

In 2015 Michael Kaiser joined as program manager with focus on 5G and tactile Internet development the Vodafone chair of TU Dresden.

Today he works as Senior Business Development Manager for SEMI Europe.

### **Is digital health dead?**



R. Roashan  
Senior Analyst  
IHS Markit, Healthcare Technology, Hellerup,  
Denmark



### **Abstract**

A growing skepticism is causing key stakeholders in healthcare to doubt the value proposition of digital health, and whether it will transform how healthcare is delivered. This is likely what will push digital health to fulfill its promises of efficiency, quality and personalization.

This session will provide an industry update on key application markets across clinical care, virtual healthcare, consumer medical, and sports, fitness and activity monitoring. In addition, these markets will be addressed alongside disruptive forces, such as artificial intelligence, genomics, and robotics.

Does digital health require a complete new system for healthcare, or can it thrive in conventional healthcare models? The session will also try to answer these questions, as it is fundamental to whether continuous investment in digital health is appropriate or not.

### **Biografie**

Roen Roashan is a Senior Analyst in the Healthcare Technology research team at IHS Markit. His specific area of coverage is digital health, where he has developed an industry-leading intelligence service on topics such as consumer medical devices, virtual healthcare and wearable technologies. Roen has been quoted in Forbes, Fortune, Time Magazine, Wall Street Journal, Washington Post, Le Monde and Al Jazeera.

Before joining IHS, Roen held positions in analyst and consulting roles. Roen received his BSc from Copenhagen Business School in Denmark, where he conducted research on NFC based mobile payment systems.

He received his MBA from California State University Long Beach in Long Beach, California. Roen is currently based in Copenhagen, Denmark.

## Low power circuit architectures for 22FDX-Technology



G. Teepe  
Director Marketing for Europe  
GLOBALFOUNDRIES, MK, Dresden, Germany



### Abstract

The „Internet of Things“ (IoT) is identified as the new driver for semiconductor growth. Emerging applications like machine vision, virtual reality and automotive advanced driving functions are becoming the next big driver for the microelectronics industry. Also, new RF-architectures for 5G-radios will be driving significant silicon volumes in the future.

In this context the FDSOI-Technology offers significant power reductions, as this technology comes with a substantial new design freedom on the back-gate bias control. Those circuit functions can be used to steer the circuit into high performance or into low power at run-time through software control. It can also be used for Process-Voltage-Temperature (PVT) corner tightening, when the supply voltage is reduced down to 0.4 Volt. This point operates close to the transistor threshold voltage, where spreads on transistor parameters are widening. Here the back-gate bias mechanism provides a very smart compensation method.

GLOBALFOUNDRIES has developed the 22FDX™-Technology, a planar, fully depleted SOI-technology with a roadmap into 12FDX™. Compared to bulk technology, 22FDX™ realizes significantly higher transistor packing densities. The greater drive strength of the transistors can be used for higher clocking speeds than bulk or, alternatively, to reduce the power dissipation.

FDSOI-technologies like our 22FDX™-Technology are a natural progression path forward from bulk-based silicon technologies for low power embedded-control- and for the emerging IoT-applications.

### Biografie

Dr. Gerd Teepe  
Director Marketing for Europe  
CMOS Platforms Business Unit

In his role as Director Marketing for Europe, Gerd is responsible for leading the CMOS Platforms marketing initiatives in this region. Prior to this, he was leading the Design Engineering Organization of GLOBALFOUNDRIES in Europe. Dr. Teepe has been with this company since its creation in 2009 and is based at the FAB1-site in Dresden. Before GLOBALFOUNDRIES, Gerd was with AMD, Motorola-Semiconductors, and NEC, Japan in R&D, Design, Product Management and Marketing roles.

Gerd holds a Master's Degree and a phd. from Aachen University (RWTH), Germany.

# Digital Health in Cardiology: Evolution of Implantable Monitors



C. Piorkowski  
Head of Department of Invasive Electrophysiology  
Steinbeis Research Institute Electrophysiology  
and Cardiac Devices, Dresden, Germany



## Abstract

Telemedicine is an old concept for enhanced patient management, which should allow for earlier reaction and medical intervention in case of patient deterioration. Initial studies, however, using nurse guided telemedicine recordings of body weight, blood pressure and heart rate failed to improve clinical patient outcome.

Only later on the usability of automatically transmitted biological signals obtained from implantable monitoring devices created add-on benefit on top of conventional care. The automatic mode of signal transmission and the fast cause-to-response time were identified as main reasons for better clinical outcome.

Pacemaker and defibrillator technologies have played a pivotal role in that development. Today, however, implantable purely diagnostic sensor and monitoring devices have taken over the forefront of technological innovation.

Although many of these technologies still share similarities with the pacemaker and defibrillator business - e.g. transmission lines and monitoring platforms - differences in customer needs push technological change and adaptation of functionality.

The talk will introduce various technological approaches to monitor cardiovascular biological signals from the perspective of the implantable sensor technology.

Apart from that it will highlight the aspect of data transmission, data management and data access, which gains overwhelming relevance using such treatment pathways.

Today's initiatives to assemble larger cardiovascular e-health networks will be discussed together with opportunities of big data harvesting and big data analysis to predict and prevent clinical outcome events.

## Biografie

### CURRICULUM VITAE

#### PERSONAL DATA

- name: Christopher Piorkowski
- born: 5th of February 1975
- address:

University of Dresden, Heart Center  
Department of Electrophysiology  
Fetscherstrasse 76  
01307 Dresden

#### TRAINING AND EDUCATION

June 1993 Graduation from High School  
November 1999 Graduation from Medical School (Charité, Berlin)  
September 2002 Completion of American licensing (USMLE I, II and CSA)

#### PROFESSION

01/00 - 07/05 House Officer and Fellow, Department of

Electrophysiology, University of Leipzig, Heart Center  
08/05 - 08/07 EP consultant, Department of Electrophysiology,  
University of Leipzig, Heart Center  
08/07 - 03/11 Head consultant, Department of Electrophysiology,  
University of Leipzig, Heart Center  
04/11 - 09/11 Director, department of Electrophysiology, Center of  
Cardiovascular Medicine, Bad Neustadt  
01/12 - 01/13 Head consultant, Department of Electrophysiology,  
University of Leipzig, Heart Center  
Since 02/13 Director, Department of Electrophysiology,  
University of Dresden, Heart Center  
Since 06/14 Director, Steinbeis Research Institute,  
Electrophysiology and Cardiac Devices  
May 2006 Exam for specialisation in Internal Medicine  
June 2007 Exam for specialisation in Cardiology

#### FOREIGN EXPERIENCE

08/97 - 08/98 „Medical School of the University of Bristol“(UK)  
08/98 - 10/98 „Rush Presbyterian Medical School Chicago“(US)  
06/99 - 09/99 „University Coimbra“(Portugal)

#### DOCTORAL THESIS

July 1997 Doctoral thesis covering the subject:  
„Comparative analysis of Carvedilol and Metoprolol in  
failing Human myocardial organ preparations - a  
contribution to aetiology and therapy of heart  
failure“

#### ASSOCIATE PROFESSOR

November 2011 Thesis covering the subject:  
„Catheter ablation of Atrial Fibrillation“

#### FIELDS OF SCIENTIFIC WORK

- Catheter ablation of atrial fibrillation
- Image integration in interventional cardiac electrophysiology
- Catheter navigation and catheter contact technologies
- Future developments of Cardiac Resynchronisation Therapy

#### REVIEWER FOR

- Heart Rhythm Journal
- Journal of Cardiovascular Electrophysiology
- Europace
- European Heart Journal
- European Journal of Heart Failure
- International Journal of Cardiovascular Imaging
- CardioVascular & Interventional Radiology

#### MEMBER OF

- German Society of Cardiology
- European Society of Cardiology

## Wearable as medical devices



N. Van Helleputte  
R&D Manager  
imec, MEDIC, Heverlee, Belgium



### Abstract

Recent years have seen a significant advancement in wearable technology for healthcare. This talk will discuss how wearables can make a difference in medical applications. For a number of chronic diseases like COPD, hypertension and sleep apnea, today there are no convenient methods available for reliable long-term disease management. This is an area where wearables can make a significant difference. The talk will focus on current state-of-the-art and discuss technological advancements and breakthroughs that are needed to achieve this. Furthermore, quite a few of these chronic conditions are related to lifestyle. Hence these can in theory be prevented. Unfortunately this involves behavioral change, which is an extremely tricky thing to accomplish. The current crop of wearable medical devices doesn't really address this space. The virtual coach program aims to develop systems and technologies to truly enable personalized coaching towards effective and acceptable change behavior. By combining physiological and contextual information, behavior profiling is achieved. The virtual coach will use this information to analyze your personal behavior, cravings, triggers and provide directed feedback at the right time. As such through programs like the virtual coach, wearable health devices are transformed into active devices that can enable behavioral change and hence achieve true preventive medicine.

### Biografie

Nick Van Helleputte received the MS degree in electrical engineering in 2004 from the Katholieke Universiteit Leuven, Belgium. He received his Ph.D. degree from the same institute in 2009 (MICAS research group). His PhD research focused on low-power ultra-wide-band analog front-end receivers for ranging applications. He joined imec in 2009 as an Analog R&D Design Engineer. He is currently R&D manager of the biomedical circuits and systems team. His research focus is on ultra-low-power circuits for biomedical applications. He has been involved in analog and mixed-signal ASIC design for wearable and implantable healthcare applications. Nick is an IEEE member and served on the technical program committee of VLSI circuits symposium and ISSCC.