



- 报告时间: 2023年10月27日 (周五) 13:45
- 报告地点: 中科大高新区 图教中心 GT-B 211
- 报告人: Robert Bogdan Staszewski 教授
- 报告题目: **Time-domain Paradigm of Analog and RF Design using Advanced CMOS Technology**

◆报告摘要:

Analog and RF circuits have been traditionally designed using continuous-time operation in voltage domain. With the scaling down of transistors and move to the FinFET technology, this is no longer possible without ruining the performance and power consumption. On the other hand, the low supply voltage and sheer switching speed of transistors favor the newly developed time-domain operation where the signal information is contained not in a voltage level but in a time transition timestamp.

This talk will give an overview of such recent advancements in the main areas of a communication channel: 1) frequency synthesizer exploiting all-digital PLLs using digital-to-time converters (DTC) and charge-sharing locking techniques; 2) digital transmitters exploiting switched-mode power-amplifier stage even at mm-wave; 3) discrete-time receivers manipulating the signal as charge packets that undergo extensive charge-sharing for filtering and decimation.

◆报告人简介:

R. Bogdan Staszewski received B.Sc. (summa cum laude), M.Sc. and PhD from University of Texas at Dallas, USA, in 1991, 1992 and 2002, respectively. From 1991 to 1995 he was with Alcatel in Richardson, Texas. He joined Texas Instruments in Dallas, Texas in 1995. In 1999 he co-started a Digital RF Processor (DRP) group in TI with a mission to invent new digitally intensive approaches to traditional RF functions. Dr. Staszewski served as a CTO of the DRP group between 2007 and 2009. In July 2009 he joined Delft University of Technology in the Netherlands where he is currently a part-time Full Professor. Since Sept. 2014 he has been a Full Professor at University College Dublin (UCD) in Ireland. He has co-authored seven books, 11 book chapters, and over 160 journal and 220 conference publications, and holds 210 issued US patents. His research interests include nanoscale CMOS architectures and circuits for frequency synthesizers, transmitters and receivers, as well as quantum computers. He is a co-founder of a startup company Equal1 Labs aiming at building the first practical CMOS quantum computer. He is an IEEE Fellow and a recipient of IEEE Circuits and Systems Industrial Pioneer Award (<https://ieee-cas.org/society-achievement-award-recipients-list>).

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