

- [Home](#)
- [About ICSG](#)
- [Members](#)
- [Publications](#)
- [ICS Seminar](#)
- [Academics](#)
- [Contact Us](#)

Integrated Circuits and Systems Group

ICS Seminar: Prof. Peter Kinget

Posted on May 18, 2010

Prof. Peter Kinget
Columbia University
Thursday, May 20, 3:00pm, ACES 5.336

Enhancing RF Receivers using Interference Cancellation and Digital Assistance

As IC technology feature sizes scale, the functional density of system-on-chip ICs increases and they often include multiple analog and RF interfaces. At the same time, nanoscale CMOS devices can only operate from lower supply voltages and can have poorer analog characteristics. This makes the design of analog and RF interfaces in nanoscale CMOS technologies particularly challenging.

In this talk we present our recent research in using digital gates to enhance the performance of RF circuits, more specifically of RF receivers. We review where digital gates can help to improve the RF performance. We discuss in detail two specific receiver circuits. The first example uses digital calibration to enhance the IIP2 performance of a direct conversion receiver for full duplex cellular systems. Thanks to digital calibration, the receiver design can be simplified while the performance can be drastically improved.

In the second example we will discuss the design of an ultra-low voltage direct-conversion receiver for cellular applications. So far the performance level of ULV receivers had been limited to wireless personal-area network applications due a degraded trade-off between the noise figure and the linearity caused by the supply voltage reduction. We show that this limit can be overcome by using an in-band feed-forward cancellation receiver architecture. It relies on digital calibration to achieve a robust, high performance across process and environmental variations.

- Search for:

• **Recent News**

- [ICS Seminar: Prof. Byunghoo Jung](#)
- [ICS Seminar: Prof. Peter Kinget](#)

- [Joint IEEE/ICS Seminar: Dr. Carl Anderson](#)
- [ICS Seminar: Dr. Gangadhar Burra](#)
- [Joint WNCG/ICS Seminar: Mr. Jayachandran](#)
- [Joint WNCG/ICS Seminar: Prof. Sobelman](#)
- [ICS Seminar: Prof. Sanjit Seshia](#)
- [ICS Seminar: Dr. Jacob Kornerup](#)
- [Joint ECE/ICS Seminar: Mr. Nan Sun](#)
- [ICS Seminar: Prof. Massimo Alioto](#)
- [ICS Seminar: Dr. Ashish Singh](#)
- [Joint Computer Architecture/ICS Seminar: Professor Luca Carloni](#)
- [ICS Seminar: Professor Jim Plusquellic](#)
- [First ICS Seminar: Professor Brian Evans](#)
- [ICSG Launches New ICS Seminar](#)

• Archived News

Select Month 

• Contact Information

Integrated Circuits and Systems Group
Department of Electrical and Computer Engineering
The University of Texas at Austin
1 University Station C8800
Austin, TX 78712-0323

Telephone: (512) 471-8000
FAX: (512) 471-8967

• Location

ACES Building
201 East 24th Street
Austin, TX 78712

[Department of Electrical and Computer Engineering](#)
[The University of Texas at Austin](#)

[Design](#)
[WordPress Theme](#)

© 2010 Integrated Circuits

and Systems Group