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Program of the WIC symposium 2013

Location: imec, Caf -1A

Thursday, May 30, 2013

09:00 – 10:00 **Registration/coffee**

10:00 – 10:10 **Opening by Liesbet Van der Perre**

10:10 – 10:50 **Invited presentation of Professor Ove Edfors,**
Professor at Lund University, 221 00 Lund, Sweden:
Massive MIMO - Performance of low-complex linear precoding

Spatial multiplexing using massive MIMO has been shown to have very promising properties, including low-complex linear precoding, large increases in spectral efficiency, and several orders of magnitude lower transmit powers - as compared to today's access schemes. These things have, however, been shown for theoretical channels with i.i.d. complex Gaussian coefficients. From a practical point of view, it is therefore important to evaluate massive MIMO in more realistic scenarios, with real massive-MIMO channels. We pursue this by analyzing measurement data from several measurement campaigns in the 2.6 GHz frequency range, using different antenna array structures with 128 antenna elements. A comparison between i.i.d. and measured massive-MIMO channels is done, with the objective of finding out how well we can expect low-complex linear precoding to work in real massive-MIMO environments.

10:50 – 11:10 **Coffee break**

11:10 – 12:40 **Cryptography**

12:40 – 14:00 **Lunch**

14:00 – 15:30 **Signal Processing for Communication**

15:30 – 17:00 **Poster session and refreshment drinks**

17:00 – 18:00 General Assembly of the Werkgemeenshap voor Informatie- en Communicatietheorie

18:30 – 19:30 Visit Museum M (Meeting point: in front of the Museum M)

19:30 Dinner at Museum M

Friday, May 31, 2013

09:00 – 10:30 **Capacity and Coding**

L. Tolhuizen: *Coding for known erasure values at the decoder* 156
(Philips Research Eindhoven)

A. Tsiatmas, C.P.M.J.Baggen, F.M.J. Willems: *Information Transmission using Illumination Systems* 164
(Eindhoven University of Technology)

Z. Ren, J. Goseling, J. Weber, M. Gastpar: *Compute-and-Forward on a Line Network with Random Access* 172
(Delft University of Technology)

B. Skoric, A.P. Mosk, P.W.H.Pinkse: *Security of Quantum-Readout PUFs againsts quadrature-based challenge-estimation attacks* 180
(Eindhoven University of Technology, University of Twente, MESA Institute for Nanotechnology)

10:30 – 11:00 Coffee break

11:00 – 12:30 **Poster session 2**

C.J.A. Jansen: *On the Orders of Binary Matrix Pairs* 181
(Compumatica, The Netherlands)

L. Tolhuizen: *The error probability after erasure decoding is monotonically non-decreasing in the erasure probability* 190
(Philips Research Eindhoven)

V. Lazov, S. Pollin, G. Vandenbosch: *Indoor Propagation and Radiation Measurements for Wireless Communication Systems* 192
(KU Leuven)

K. Papagiannopoulos, G. Alpar, W. Lueks: *Designated Attribute Proofs with the Camenish-Lysyanskaya Signature* 201
(Radboud University Nijmegen, TNO)

E. Marin, D. Singelee, S. Pollin: *Security Analysis of An implamtable Cardioverter Defebrillator* 208
(KU Leuven)

J. Rodriguez, M. Mercuri, P. Karsmakers, P.J. Soh, P. Leroux, D. Schreurs: *Automatic Fall Detector Based on Sliding Window Principle* 215
(KU Leuven, Thomas More Kempen)

C. van Dam, L.J. spreeuwers, R.N.J. Veldhuis: *Model-free 3D Shape Reconstruction from Video Sequences* 220
(University of Twente)

J. de Groot, J.-P. Linnartz: *Secrecy rate versus verification performance in biometric authentication schemes* 228
(Eindhoven University of Technology)

12:30 – 14:00 Lunch

14:00 – 15:10 **Sensing and Feature Detection**

Y. Peng, L. Spreeuwers, B. Gokberk, R. Veldhuis: *Comparison of Super-Resolution Benefits for Face Recognition on Downsampled Images and Realistic Low-Resolution Data* 236
(University of Twente)

J. Bodart, J. Verlant-Chenet, A. Bourdoux, J.M. Dricot, P. De doncker, L. Lampe, F. Horlin: *Distributed Compressed Sampling Architecture for Maximum Likelihood Signal Detection* 244
(Université Libre de Bruxelles)

A. Jalalirad, T. Tjalkens, J.-P. Linnartz: *Selecting feature-based models* 250
(Eindhoven University of Technology)

M. R.J. Gerrits, R.C. Hendriks, N.D. Gaubitch, J. Jensen, M.S. Pedersen: *Evaluation of Instrumental Measures for the Prediction of Musical Noise in Enhanced Noisy Speech 258*
(Delft University of Technology)

15:10 – 15:50 **Invited presentation of Dr. Andy Lambrechts**
imec, Leuven, Belgium:

Hyperspectral imaging: from lab to industry

Although the potential of hyperspectral imaging has been demonstrated for many applications, using laboratory setups in research environments, its adoption by industry has so far been limited due to the lack of high speed, low cost and compact hyperspectral cameras. To bridge the gap between research and industry, we have developed a novel hyperspectral sensor that integrates the spectral filters directly on top of a standard CMOS imager. The spectral filters can be matched with the application and have been demonstrated in both line-scan and snapshot implementations that address different application areas. The result is a compact and fast hyperspectral camera made with low-cost CMOS process technology, enabling hyperspectral imaging in industry, medical and consumer applications.

15:50 – 16:00 Best student paper award ceremony

16:00 Closing by Liesbet Van der Perre