Invited talks during the IC1004 11th MC Meeting

1. Dr Roman Łapszow
"Active Antennas Solutions - 1st European Trial of AAU3902" *

Abstract:
Operator perspective on current active antenna technology status will be presented. Overview on HW platforms and SW features as well as performance analysis based on first in Europe implementation of active antennas cluster in commercially operated network will be discussed. Observed throughput gains and aspects for further investigations are following topics of the presentation. Orange concept of combined horizontal and vertical beamforming method on 2 module integrated antenna will be shared as well as energy consumption aspects due to reduced emitted power in individual beams will be discussed.

* *Huawei active antenna product*

The lecturer biography:

Roman Łapszow is a leader of radio technology evolution projects in Orange Group. He is responsible for innovations and technology evaluation. He graduated with the Ph.D. degree from Warsaw University of Technology, Faculty of Electronics and Information Technology. He was worked for vendors and operators, has experience in radio network rollout, planning, design & integration. Recently he has designed LTE adaptive antenna and algorithm that is subject of international patent.

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2. Prof. Tadashi Matsumoto
"Links-on-the-fly technologies: from the correlated source coding theorem viewpoint"

Abstract:
The goal of this talk is to provide the course takers with deep understanding of the unified concept for designing and analyzing decode-and-forward wireless cooperative communications systems *allowing after-decoding errors occurring in the intra-links*. Decode-and-forward (DF) relaying has been considered as one of the most suitable and promising techniques for the applications to practical systems, because it does not require source-relay (referred to as intra-links) channel state information at the destination. However, it has major drawback that frames detected to contain errors in the information part, the relay/relays discards/discard the frame/frames, which degrades the transmission performance significantly.

This talk course reformulates the DF system from the viewpoint of the correlated source coding in network information theory. It is shown that even though errors are detected in the information part after decoding, still significant performance gain can be achieved over the conventional DF system, if the erroneous information part is interleaved, re-encoded, and forwarded to the destination. Even, more simply, the information part is only *extracted* (no decoding process involved in the relays), still significant gain can be achieved because this structure changes the network, as a whole, into a distributed turbo code. The advantageous feature/characteristics of the system described above are all related to the correlated source coding in network information theory. In this talk, the theoretical basis to practical applications, algorithm, and future prospects are presented based on the unified theoretical background.

The lecturer biography:

Tad Matsumoto received his B.S., M.S., and Ph.D. degrees from Keio University, Yokohama, Japan, in 1978, 1980, and 1991, respectively, all in electrical engineering. He joined Nippon Telegraph and Telephone Corporation (NTT) in April 1980. Since he engaged in NTT, he was involved in a lot of research and development projects, all for mobile wireless communications systems. In July 1992, he transferred to NTT DoCoMo, where he researched Code-Division Multiple-Access techniques for Mobile Communication Systems. In April 1994, he transferred to NTT America, where he served as a Senior Technical Advisor of a joint project between NTT and NEXTEL Communications. In March 1996, he returned to NTT DoCoMo, where he served as a Head of the Radio Signal Processing Laboratory until August of 2001; He worked on adaptive signal processing, multiple-input multiple-output turbo signal detection, interference cancellation, and space-time coding techniques for broadband mobile communications. In March 2002, he moved to University of Oulu, Finland, where he served as a Professor at Centre for Wireless Communications. In 2006, he served as a Visiting Professor at Ilmenau University of Technology, Ilmenau, Germany, funded by the German MERCATOR Visiting Professorship Program. Since April 2007, he has been serving as a Professor at Japan Advanced Institute of Science and Technology (JAIST), Japan, while also keeping the position at University of Oulu.

Prof. Matsumoto has been appointed as a Finland Distinguished Professor for a period from January 2008 to December 2012, funded by the Finnish National Technology Agency (Tekes) and Finnish Academy, under which he preserves the rights to participate in and apply to European and Finnish national projects. Prof. Matsumoto is a recipient of IEEE VTS Outstanding Service Award (2001), Nokia Foundation Visiting Fellow Scholarship Award (2002), IEEE Japan Council Award for Distinguished Service to the Society (2006), IEEE Vehicular Technology Society James R. Evans Avant Garde Award (2006), and Thuringen State Research Award for Advanced Applied Science (2006), 2007 Best Paper Award of Institute of Electrical, Communication, and Information Engineers of Japan (2008), Telecom System Technology Award by the Telecommunications Advancement Foundation (2009), IEEE Communication Letters Exemplifying Reviewer Award (2011), and Nikkei Wireless Japan Award (2012). He is a Fellow of IEEE and a Member of IEICE. He is serving as an IEEE Vehicular Technology Distinguished Lecturer during the term July 2011-June 2015.