Workshop on Full-Duplex Techniques for 5G and Beyond (WFD5GB)

Co-located with European Wireless 2016, May 18–20, 2016 Oulu, Finland

The emerging 5th generation and beyond wireless systems will experience a significant increase on the number of connected devices and high volume of data traffic. Additionally, high traffic load variations among heterogeneous network cells over time pose an extra challenge, due to the possible asymmetric traffic and dynamics between the uplink and downlink communications. Full-duplex (FD) technology, by which devices transmit and receive simultaneously on the same frequency band, have attracted a lot of research attention lately. FD radios can potentially double the spectral efficiency and therefore are a promising technology for 5G and beyond wireless network design. However, FD radios suffer from severe self-interference (SI), as well as extra cross interference between the uplink and downlink caused by simultaneous transmissions which further degrades the overall network performance. To this end, many research groups around the world have proposed new transceiver designs, implemented advanced FD prototypes and have shown that SI can be mitigated almost up to the noise floor. Recently, some fields trials have also been completed in order to bring FD technology a step closer to practice. All these accomplishments show the feasibility of FD and its applicability for future wireless networks. Despite these fundamental results and achievements, still there are many challenges and open problems to resolve on FD operation. In order to achieve the full potential of FD transmission, it is necessary to cope with the self-interference and develop new mechanisms and efficient protocols, while reducing the energy consumption due to the required additional hardware.

The objective of this workshop is to present new research on FD techniques, protocols, and applications exploring all aspects of 5G and beyond network design.

In particular, we invite contributions exploring the following topics of interest (but not limited to):

- Advanced antenna design for FD
- Advanced transceiver design for FD
- Advanced SI cancellation techniques for FD
- MIMO FD transceiver design
- Performance analysis of FD systems/networks
- New FD MIMO techniques for multiuser interference cancellation
- FD relaying techniques
- Physical layer security and FD
- Cognitive radio and FD
- Wireless powered communications and FD
- FD D2D communications
- FD small-cells deployments
- Latency in FD networks
- Cross-layer design for future FD networks
- FD communication over HetNets
- Ad-hoc FD networks
- FD MAC and higher layer protocols
- Resource allocation, medium access control, and scheduling for FD networks
- Experimental evaluation of FD prototypes

Important Dates

Paper submission deadline: **March 4, 2016**
Notification of acceptance: March 22, 2016
Camera ready due: March 29, 2016

Submission Guidelines

The workshop accepts only novel, previously unpublished papers in the area of full-duplex communication. Prospective authors are encouraged to submit a 6-page IEEE conference style paper (including all text, figures, and references) through EDAS submission system (https://www.edas.info/). Papers exceeding the maximum length of six pages will be subject to an over-length charge of 100 euro per additional page (a maximum of two pages can be added). The charge shall be paid as an additional fee to ordinary registration by the reference author of the paper. Accepted papers must be presented at the workshop by one of the authors. All papers selected for publication will be published together with European Wireless 2016 proceedings and available on IEEE Xplore database and will be indexed in the abstract and citation database Scopus (approval pending).

Keynotes

Prof. Risto Wichman, Aalto University, Finland
Prof. Andreas Peter Burg, EPFL, Switzerland

Invited Panel Discussion

The workshop will also hold a panel discussion with international experts from academy and industry. The panel will be invited to comment on the potential value, current research trends, potential applications and future challenges for successful full-duplex network deployment. The audience will be invited to take part in the discussion.

Organizers

Dr. Hirley Alves, University of Oulu, Finland
Dr. Himal A. Suraweera, University of Peradeniya, Sri Lanka
Prof. Ioannis Krikidis, University of Cyprus, Cyprus

Technical Program Committee

Taneli Riihonen, Aalto University, Finland
Richard Demo Souza, UTFPR, Brazil
Melissa Duarte, Huawei, France
Caijun Zhong, Zhejiang University, China
Derrick Wing Kwan Ng, UNSW, Australia
Ali Catagay Cirik, University of Edinburgh, Scotland
Pekka Pirinen, University of Oulu, Finland
Nghi H. Tran, University of Akron, USA
Carlos Lima, UNESP-SJBV, Brazil
Cristina Lavín, TTI, Spain