The foreseen huge growth in mobile and wireless traffic volume and number of wirelessly-connected devices by 2020 call for new innovative solutions to provide fundamental improvements to wireless networks operation in terms of spectrum and energy efficiency. Full-duplex wireless transmission, where a node can send and receive at the same time in the same frequency band, opens new possibilities for improving wireless communication system performance. The full-duplex transmission paradigm has several potential use cases in wireless networks, including e.g., backhaul connections, relays, and connections between base stations and devices. However, the paradigm sets challenges to wireless transceiver implementation due to very large self-interference cancellation requirement in the full-duplex transceiver. Successful solving of the implementation challenges paves path for introducing full-duplex transmission paradigm to evolution paths of 4G (LTE/LTE-A) and IEEE802.11 technology based systems and to future 5G systems.

This workshop will look at latest developments with full-duplex transceiver solutions and discuss applicability of the technology for future evolution of wireless communications systems.

The workshop consists of:

- ‘Invited Papers’ session, with the theme ‘Novel transceiver solutions and potential applications for full-duplex wireless transmission’, and
- ‘Panel’ session, having representatives from industry and academia, discussing the feasibility of full-duplex technology as the solution for future wireless systems.

The workshop is organized in co-operation with Full-Duplex Radios for Local Access (DUPLO) project. DUPLO is funded by the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement no. 316369.
Preliminary Program

Wednesday June 4th, 9am – 4.30pm
Venue: Radisson Blu Hotel, Oulu

Program chair: Markku Juntti/University of Oulu, Finland

9:00 Workshop opening,
Markku Juntti/University of Oulu

9:10-10:00 Invited Papers, Session I

Layered Interference Mitigation for Wireless Networks
Behnaam Aazhang/Rice University, USA

RF Self-Interference Cancellation for Full-Duplex
B. van Liempd,B. Debaillie,J. Craninckx/imec, Belgium
C. Lavín,C. Palacios/TTI, Spain
S. Malotaux, J.R. Long/Delft University of Technology, The Netherlands
D.J. van den Broek, E.A.M. Klumperink/University of Twente, The Netherlands

10:30-12:00 Invited Papers, Session II

Study of a Full-Duplex Dual-Band OFDM Transceiver
Guillaume Villemaud/INRIA, France

Feasibility of Inband Full-Duplex Radio Transceivers with Imperfect RF Components: Analysis and Enhanced Cancellation Algorithms
Dani Korpi, Lauri Anttila, Mikko Valkama/Tampere University of Technology, Finland

Active Self-Interference Cancellation Mechanism for Full-Duplex Wireless Transceivers
Ramez Askar, Thomas Kaiser/University of Duisburg, Germany
Benjamin Schubert, Thomas Haustein, Wilhelm Keusgen/Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institute, Germany

13:00-14:30 Invited Papers Session III

Digital self-interference cancellation in full-duplex transceivers
Visa Tapio/University of Oulu, Finland
Power Control and Beamformer Design for the Optimization of Full-Duplex MIMO Relays in a Dual-Hop MISO Link
Umut Ugurlu, Risto Wichman, Taneli Riihonen/Aalto University, Finland
Cassio Ribeiro, Carl Wijting/Nokia Research Center, Finland

On the Average Spectral Efficiency of Interference-Limited Full-Duplex Networks
Hirley Alves, Carlos H. M. de Lima, Pedro H. J. Nardelli, Matti Latva-aho/University of Oulu, Finland
Richard Demo Souza/Federal University of Technology - Paraná (UTFPR), Brazil

15:00-16:30 Panel Discussion 'The feasibility of full-duplex wireless transmission as the solution for evolved 4G and future 5G systems needs'
Moderator: Markku Juntti/University of Oulu, Finland

Panelists:
Behnaam Aazhang/Rice University
Wilhelm Keusgen/Fraunhofer HHI
Juha Karjalainen/Samsung
Kari Pajukoski/NSN
Stefan Andersson/Ericsson