Programa de Doctorado en Ingeniería Automática, Electrónica y de Telecomunicación
Universidad de Sevilla

Anuncio de conferencias

1. **Massive MIMO Pilot Decontamination**
2. **Analog to Information Conversion**

Ambas tendrán lugar el

6 de Julio 2016, de 10:00 a 13:00

en la Sala de grados de la ETSI

3. **Transmit Beamspace in MIMO Radar**

7 de Julio 2016, de 10:00 a 11:30

en la Sala de grados de la ETSI

Dr. Sergiy A. Vorobyov,

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Departamento de Teoría de la Señal y Comunicaciones

Abstracts:

1. Pilot contamination is a phenomenon resulting from sharing pilot sequences across cells, thereby introducing inter-cell interference both in the uplink (UL) and the downlink (DL) of massive multiple-input multiple-output (MIMO) systems. This interference leads to a performance bottleneck and hence is considered a major impediment in massive MIMO systems. An introduction to massive MIMO systems and a number of approaches for pilot decontamination, including the use of superimposed pilots, will be summarized in this talk.

2. According to compressive sampling (CS) theory, fewer samples than those required by the Shannon-Nyquist-Kotelnikov's sampling theorem are needed to recover an analog signal (not necessarily bandwidth-limited) if the signal is sparse in some orthonormal basis. This implication gives birth to the analog-to-information conversion (AIC). An AIC device includes a number of parallel branches of mixer and integrators (BMIs) where one measurement is made per one BMI. We will show how to increase the number of measurements and discuss performance limits.

3. The use of multiple waveforms in radar with collocated antennas is referred to as MIMO radar. The tradeoff between the waveform diversity and coherent processing is of a great importance for such a sensing system. Indeed, while the MIMO radar allows for using different waveforms and, thus, extending the aperture of the virtual array, the SNR gain of the MIMO radar is low as compared to the phased-array radar. This as well as many other issues can be addressed by introducing Transmit Beamspace (TB). This talk will summarize our results about TB for MIMO radar.

About the speaker:

Dr. Sergiy A. Vorobyov is Professor of Signal Processing at Aalto University. Before joining Aalto, he was Professor of Electrical and Computer Engineering at the University of Alberta, Canada. Dr. Vorobyov is a recipient of the 2004 IEEE Signal Processing Society Best Paper Award, 2007 Alberta Ingenuity New Faculty Award, 2011 Carl Zeiss Award (Germany), 2012 NSERC Discovery Acceleration Award, and other reserach awards. His fields of interest lie in statistical and array signal processing; active and passive sensing; optimization, game theoretic, and linear and multi-linear algebra techniques for signal processing and communications; estimation, detection, and sampling theories, and cognitive systems. His work has been supported by the Academy of Finland, NSERC - Canada, DFG - Germany, and several companies.