Séminaire ICI : Chao Zhang

24 Janvier 2018, 11:00 – 12:00

Titre du séminaire et orateur

Interference coordination via power domain feedback.

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Date et lieu

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Abstract

This talk will present a novel estimation technique in interference networks, which enables each transmitter to acquire global channel state information (CSI) from the sole knowledge of individual received signal power measurements; this makes dedicated feedback or inter-transmitter signaling channels unnecessary and enables coordination in typical distributed power control settings. To make this possible, we resort to a completely new technique whose key idea is to exploit the transmit power levels as symbols to embed information and the observed interference as a communication channel the transmitters can exploit to exchange coordination information. Although the used techniques allow any kind of low-rate information to be exchanged among the transmitters, the focus here is to exchange local CSI. The proposed technique also comprises a phase which allows local CSI to be estimated. Once an estimate of global CSI is acquired by the transmitters, it can be used to optimize any utility function which depends on it. While algorithms which use the same type of measurements such as the iterative water-filling algorithm (IWFA) implement the sequential best-response dynamics (BRD) applied to individual utilities, here, thanks to the availability of global CSI, the BRD can be e.g., applied to the sum-utility.

Bio

Chao Zhang received the B.Sc. degree in optoelectronics from the Huazhong University of Science and Technology (HUST), Wuhan, China, in 2012, the M.S. degree and Ph. D degree from CentraleSupelec-Univ. Paris Saclay in 2014 and 2017 respectively. He is currently the post-doc with the Laboratoire des Signaux et Systèmes, collaborating with RTE. His research interests include resource allocation in the wireless communication, optimization in power control and smart grid, game theory.