

# **Séminaire ICI : Noura Sellami**

15 Mai 2013, 14:00 – 15:30

## **Titre du séminaire et oratrice**

A Two-Phase Scheduling Scheme for Cognitive Radio Networks Based on Opportunistic Beamforming.  
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## **Date et lieu**

Mercredi 15 mai, 14h00.  
ENSEA, Cergy-Pontoise, salle 384.

## **Abstract**

Cognitive radio holds tremendous promise for increasing spectral efficiency in wireless systems. In this talk, we consider an underlay cognitive radio system where a large number of secondary users (SUs) can share the spectrum with a primary user (PU). We assume that  $M$  antennas are used at the cognitive base station (CBS) and the CBS does not have the full channel state information (CSI) from users. We propose to study the problem of secondary users scheduling under the constraint of interference to the PU while maximizing the throughput of the secondary system. In order to reduce the amount of required feedback, our scheduling algorithm is based on opportunistic beamforming. It consists of two steps. In the first step, the cognitive base station constructs  $N$  matrices of  $M$  beams. The primary user selects the one which minimizes the interference to itself and sends the index of selected beamforming matrix to the CBS. In the second step, the cognitive users having the highest signal to interference and noise ratios (SINRs) are selected for transmission, which can be done with little feedback.