

Séminaire ICI : Raouia Masmoudi

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Titre du séminaire et oratrice

A Closed-Form Solution to the Power Minimization Problem over Two Orthogonal Frequency Bands under QoS and Cognitive Radio Interference Constraints.

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Abstract

This presentation considers a Cognitive Radio (CR) channel composed of a secondary user (SU) and a primary user (PU). An analysis of the power minimization over several orthogonal frequency bands at the SU level under the following constraints is provided: a minimum Quality of Service (QoS) constraint, maximum peak and average interference to the PU constraints. The general solution, when it exists, is a water-filling type of solution which can be computed via iterative algorithms. It turns out that, in the case of two orthogonal bands a closed-form analytical solution can be found and a complete analysis of the feasibility of these opposing constraints is presented in details. Several numerical results that sustain and give insight into the analysis are also discussed.

Index Terms: Cognitive Radio channels, power-efficient spectrum allocation problems, green communications.