

Inst. Telecommunications and Multimedia Applications -
Universitat Politècnica de València

Lecture on

THE LIMITS OF COOPERATION. THE GAUSSIAN BROADCAST CHANNEL AND GAUSSIAN MULTIPLE ACCESS CHANNEL

Dr. Daniel Calabuig

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- **Date: May 8, 2013**
- **Hours: 11:30 – 13:30 h**
- **Location:** Sala de Reuniones iTEAM, 4^a planta, acceso D, Edificio 8G, Universitat Politècnica de València, Camino de Vera s/n, 46022 Valencia.

Abstract

Nowadays, cooperative multipoint transmission is considered as a key feature for future cellular systems. Assuming a perfect backhaul and channel knowledge, the best performance can be achieved with joint processing at the core network. Then, the network of base stations becomes a distributed antenna system, which downlink channel is the Gaussian broadcast channel, and uplink channel is the Gaussian multiple access channel.

This talk will present both channels, and the capacity achieving transmission schemes. Although the optimum transmission schemes are known, the computation of the optimum transmission parameters is not an easy task, but for very simple scenarios. This presentation will show the problems of the computation of these parameters, and some interesting results that can help with the optimization.

Bio

Daniel Calabuig received the M.S. and Ph.D. degrees in telecommunications from the Universidad Politècnica de Valencia (UPV), Valencia, Spain, in 2005 and 2010 respectively. In 2005 he joined the Institute of Telecommunications and Multimedia Applications (iTEAM) from the UPV. In 2006 he obtained a grant from the Spanish Ministry of Education for helping young researchers obtain their Ph.D. During the following years he participated in some European projects and activities like NEWCOM, COST2100 and ICARUS. During his Ph.D., Daniel Calabuig worked on radio resource management in heterogeneous wireless systems and Hopfield neural networks optimization.

In 2009 he visited the Centre for Wireless Network Design (CWIND) at the University of Bedfordshire, Luton, UK, for a period of four months (CWIND is currently at the University of Sheffield). In 2010 he obtained a Marie Curie Fellowship from the European Commission for researching in the field of cooperative multipoint transmissions. Thanks to this fellowship, Daniel Calabuig visited the department of Systems and Computer Engineering (SCE) at Carleton University, Ottawa, Canada, from 2010 to 2012. During 2012, he also visited the TOBB Ekonomi ve Teknoloji Üniversitesi, Ankara, Turkey.

Registration

Participation to the Tutorial is open and free. However, since the number of participants is limited to 20, a registration before May 7th, at 1 p.m. is required. Please email to José Monserrat (jomondel@iteam.upv.es) with your name, affiliation and contact information. You will receive a confirmation by May 7th.

More information: José Monserrat (jomondel@iteam.upv.es)

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