

CENTRE DE



RECERCA



MATEMÀTICA



# Advanced Course on Optimization: Theory, Methods, and Applications

## Dates

Advanced Course: July 20 to 24, 2009

## Place

Centre de Recerca Matemàtica  
Campus de la Universitat Autònoma de Barcelona, Bellaterra

## Goals

This activity aims at promoting research in the area of Optimization in all of its components: theory, algorithms and practical problems. Thus, the courses are divided accordingly in these three main parts: The theoretical part is a self-contained course on the general momentum problem and its relations with the semi-definite programming. This part will be presented by Jean B. Lasserre (Senior Researcher, CNRS), who is an established researcher and specialist of the domain.

The second part will be dedicated to the problem of determination of Nash equilibria from an algorithmic viewpoint. It will be presented by Francisco Facchinei, full professor at the University of Roma "La Sapienza", established researcher and co-author of an extended monograph on this topic (Springer, 2 volumes).

The last part consists of the study of congestion models for traffic networks and of developing modern optimization techniques for finding traffic equilibria based on stochastic optimization techniques and game theory. This part will be presented by Roberto Cominetti, mathematical engineer and full professor of the University of Chile, who has worked for several years on congestion models of the traffic of the municipality of Santiago de Chile.

The main lectures will take place in the morning. Wednesday afternoon will be devoted to social activities, while in the other afternoons there will be four invited talks (by established researchers) and there will be seminar talks, a poster session and short communications in which young participants will be particularly encouraged to participate.

## Scientific Committee

Aris Daniilidis, Universitat Autònoma de Barcelona  
Juan-Enrique Martínez-Legaz, Universitat Autònoma de Barcelona  
Emilio Carrizosa, Universidad de Sevilla  
Laureano Escudero, Universidad Rey Juan Carlos  
Justo Puerto, Universidad de Sevilla

## Courses

Jean-Bernard Lasserre, CNRS, France  
*Moments, sums of squares and semidefinite programming*

Francisco Facchinei, Università di Roma  
*Generalized Nash equilibria and their computation*

Roberto Cominetti, Universidad de Chile  
*Equilibrium and learning in traffic network games*

Emilio Carrizosa, Universidad de Sevilla  
*DC optimization. Algorithms and applications*

Laureano Escudero, Universidad Rey Juan Carlos  
*Branching and bounding strategies for multistage stochastic mixed integer programming*

Claude Lemaréchal, INRIA Rhône-Alpes, France  
*Connections between convex analysis and combinatorial optimization*

Justo Puerto, Universidad de Sevilla  
*On some non-standard location problems*

## Invited Talks Afternoon Session

Registration fee: 250 Euros

## Registration and Payment

## Information

Opt2009@crm.cat  
www.crm.cat/OPT2009



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