# EDITORIAL
# THE MODE/ROADEF 2008 CONFERENCE

This issue of *RAIRO-OR* contains selected papers presented at the MODE/ ROADEF 2008 Conference held in Clermont-Ferrand in February 2008. This was the first time the MODE Group (*Mathématiques de l'Optimisation et de la Décision*) of SMAI (French Society for Industrial and Applied Mathematics) and the ROADEF society (French society for Operations Research and Decision Analysis) joined their annual meetings for a common event. The junction of these two events was a way to assert the complementarity which exists between Operations Research and Mathematical Programming, which is also fully reflected in the general orientations of the *RAIRO-OR* journal.

Organized at the LIMOS CNRS laboratory and hosted by the ISIMA Computer Science Engineering Institute, the MODE/ROADEF 2008 conference gathered in Clermont-Ferrand about 500 participants and more than 250 talks were presented. This time was also an opportunity to make better know the existing potential in O.R. and in Optimization of the Clermont-Ferrand campus, to provide LMD and Engineering students to get a first vision about research, and to make ROADEF participants learn about the natural attractiveness of Auvergne region. The whole success of the conference proved that O.R. and Mathematical Programming really earned during the recent year a new status inside the national scientific landscape, as it was also confirmed in 2006 by the creation of the GDR CNRS "Recherche Opérationnelle", under the impulsion of P. Chrétienne.

The scientific scope of the meeting was very broad, from Mathematical Programming to Operations Research applications, joining theory with algorithmic issues and the modelling of real-case problems from the industry. The present selection of papers has been the result of a special call for papers posterior to the conference. Its wide scope agrees with both traditional fundamental focus and current applicative trends in O.R.

The first of these papers, "*Explicit-polyhedral approximations of the Euclidean ball*" by F. Bonnans and M. Lebelle, analyzes the problem of approximating an unknown polyhedral set between two homothetic Euclidean balls (or ellipsoids). That question has interesting applications when dealing with cutting planes methods based on successive polyhedral approximations of the optimal set of a convex minimization problem. The presence of this paper inside the selection expresses in a convenient way the link between continuous and combinatorial concept which is at the core of many O.R. models.

The second paper, entitled "*An efficient ILP formulation for the single machine scheduling problem*" by C. Briand, S. Ourari and B. Bouzouia, focuses on a single-machine scheduling problem with the maximum lateness criterion. It provides an effective exact algorithm for large instances of this important and classical model. The presence of this paper inside the selection recall the essential role played by Scheduling Theory and by the ILP paradigm in the development of O.R. in France.

In the third of those papers, which deals with "*Clique-connecting forest and stable set polytopes*", D. Cornaz proposes a linear integer formulation for the clique-connecting forest polytope which can be separated in polynomial time. The link between the model and the stable set polytope is explored to generate new facet-defining inequalities. Its contribution also testifies the importance which have been taken polyhedral approaches, first born from J. Edmond's in the first 1970's, and by related software tools (ABACUS, COIN, ILOG's products,...), in the way O.R. is currently managed in industrial contexts.

Finally the last paper opens new prospects, by dealing with emerging embedded and mobile communication technologies and with new classes of semi-autonomous vehicles. This paper, which is entitled "*An advanced approach for the public transportation regulation system based on cybercars*" and which is co-authored by A. Melki, S. Hamadi, Y. Berger, T. Sallez and C. Tahon, shows the way new trends in O.R. should rise from evolutions in Society concerns and in technologies: typically, transportation problems are reformulated here while integrating the need to take into considerations cybercars and mobile tracking in the design of new flexible intelligent transportation services.

We were very pleased to organize this MODE/ROADEF08 conference in Clermont-Ferrand. The contributions which were submitted, as well as the various presentations which were proposed by Ph.D. students and young searchers, lead us to be very optimistic in relation to the future of O.R. and Mathematical Programming in France. Clearly, new trends are emerging, which links O.R. to large data handling, machine learning, mobile activity supervision systems, embedded computing or collaborative planning. All these trends give rise to new problems and new paradigms. By many ways, O.R. and Mathematical Programming find their place in industrial activities, and those who may prevail themselves with those specific skills are likely to find interesting positions in ROADEF08 sponsor groups like ILOG/IBM, GDF, EDF, France-Telecom R/D, Michelin, Air France, but also in many smaller companies.

Before leaving, we would like to cheerfully thank all the contributors and the referees of the papers submitted to this issue for their excellent reviews.

Best wishes for the next edition in Toulouse.

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Philippe Mahey
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