Centro Internacional de Matemática

Iberian Conference in Optimization

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Contributed Parallel Session 3 – Continuous Optimization
November 17, 17.15 – 19.15

- *The Semi-Continuous Quadratic Mixture Design Problem*

  Inmaculada Garcia Fernandez
  Universidad de Almeria, Spain

  The semi-continuous quadratic mixture design problem (SCQMDP) is described as a problem with linear, quadratic and semi-continuity constraints. Moreover, a linear cost objective and an integer valued objective are introduced. The research question is to deal with the SCQMD problem from a branch-and-bound perspective generating robust solutions. The industry the problem originates from, applies different approaches to generate good acceptable solutions. Solvers are usually based on concepts such as generating random solutions, clustering, non-linear programming local search and grid search. The research question of our investigation is whether we can construct a specific Branch-and-Bound approach for the SCQMD problem, taken into account its semi-continuous character. The algorithm is tested on several cases derived from industry.

- *A stretched simulated annealing method to identify global solutions*

  Edite M. G. P. Fernandes
  University of Minho, Portugal

  In this talk we consider the problem of finding all the global solutions of a nonlinear optimization problem. We propose a new algorithm that combines the simulated annealing method with a function stretching technique in order to generate a sequence of global optimization problems that are defined whenever a new global solution is identified. Computational experiments with a set of well-known test problems show that the proposed method is effective.

  (Joint work with Ana Isabel Pereira)

- *On solution methods to generate Stackelberg equilibria of a Huff based location problem*

  Eligius M. T. Hendrix
  University of Almería, Spain, and University of Wageningen, The Netherlands

  Huff introduced a simple model in 1963 that describes the attractiveness of retailer plants for clients. We study the situation where two competing chains intend to open each a new facility in a trade area. This leads to a Game theoretic model with two players, usually called leader (the chain who locates first) and follower (the other chain), each dealing with a Global Optimisation problem. Several Branch-and-Bound techniques are investigated to find solutions to this problem. This talk reports on findings on this topic.