GENERALIZED-GRASP FOR GLOBAL MIXED-INTEGER NONLINEAR OPTIMIZATION

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Abstract:

The metaheuristic method Continuous?GRASP efficiently solves general constrained global continuous optimization problems (Facó, Silva and Resende ? 2011, 2012, 2013, 2014, 2015, 2016) by adapting the greedy randomized adaptive search procedure (GRASP) for discrete optimization to the case of linearly and nonlinearly constrained continuous variables. A new version that also considers integer variables is presented: Generalized?GRASP. Small and medium scale MINLPs are currently addressed using continuous relaxations and solved by a branch?and?bound procedure. Large scale instances cannot be solved this way due to the curse of dimensionality. Generalized?GRASP does not apply any relaxation. GRASP random search and local improvement phases independently use a discrete and a continuous set. Linear and/or nonlinear constraints are handled by C?GRASP. Numerical solutions to difficult MINLP problems are presented.

Topics: MH Metaheuristics // MH Metaheurísticas // MH - Metaheuristicas

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