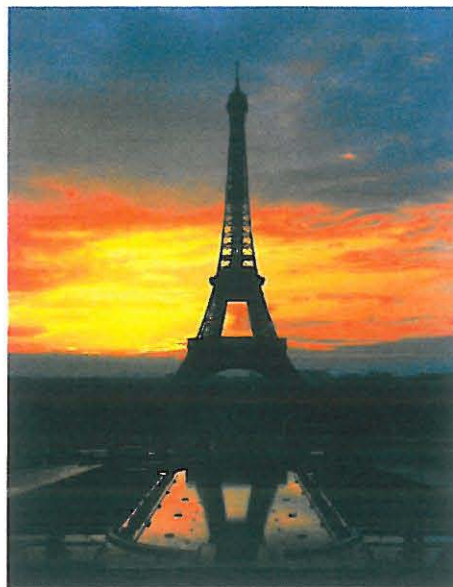


26th Conference of the European Chapter on Combinatorial Optimization

Conservatoire National des Arts et Métiers
Paris, France
May 30 - June 1, 2013



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Saturday June 1

9.00 - 10.00 Plenary talk (*Amphithéâtre J.-B. Say (Y)*) (chair: V. Paschos)
A. Marchetti-Spaccamela Combinatorial Optimisation Problems in Real Time Scheduling

10.00 - 10.30 Coffee break

Morning session 1: 10.30 - 11.50

Applications of CO 5 (*Amphithéâtre J.-B. Say (Y)*) (chair: E. Mohr)

Elmar Swarat A bicriteria optimization approach to toll enforcement
Günter Schmidt Competitive Analysis of Bi-directional Non-preemptive Conversion
Esther Mohr Market Clearing Mechanisms - How to allocate bids and asks efficiently?
Mahsa Elahipanah Shift scheduling and activity assignment with employee preference satisfaction

Graph Theory 3 (*Room 35.3.35*) (chair: F. Bonomo)

Raksmei Phan Vertex Cover by Clique Partition
Flavia Bonomo On domination-type problems in graphs with bounded proper-thinness
Inês Barbedo The poset structure of the regular exceptional graphs
Viet Hung Nguyen König's edge-colouring theorem for all graphs

Metaheuristics 3 (*Room 35.3.28*) (chair: M. Novozhylova)

Maryna Novozhylova Heuristic Method For Irregular Placement Problem In Anisotropic Area
Filipe Alvelos SearchCol algorithms to the generalized assignment problem
Andrew J. Parkes Hyper-heuristics: Batched mode and other Directions

11.50 - 12.00 Break

Morning session 2: 12.00 - 13.00

Applications of CO 6 (*Amphithéâtre J.-B. Say (Y)*) (chair: V.-D. Cung)

Fatme Makssoud A new formulation for the assembly line re-balancing problem
Thibaut Lefebvre Network coding with simple arc failures
Van-Dat Cung Balanced partitioning for school canteen meat supply

Mathematical Programming 2 (*Room 35.3.28*) (chair: D. Porumbel)

Abdelouahab Zaghrouti Integral Simplex Using Decomposition for the Set Partitioning Problem

The poset structure of the regular exceptional graphs

Inês Barbedo, Domingos M. Cardoso, Paula Rama

An exceptional graph is a connected graph with least eigenvalue greater than or equal to -2 which is not a generalized line graph. In [3] it is shown that the set of regular exceptional graphs is partitioned in three layers. A (κ, τ) -regular set is a subset of the vertices of a graph, inducing a κ -regular subgraph such that every vertex not in the subset has τ neighbors in it [2]. In [1] a new recursive construction of regular exceptional graphs is proposed, where each exceptional regular graph is constructed by a $(0, 2)$ -regular set extension. These extensions induce a partial order on the set on the exceptional graphs in each layer. Based on this construction, an algorithm to produce the regular exceptional graphs of the first and second layer is introduced and the corresponding poset is presented, using its Hasse diagram. The process of extending a graph is reduced to the construction of the incidence matrix of a combinatorial 1-design, considering several rules to prevent the production of isomorphic graphs. A generalization of this recursive procedure to the construction of families of regular graphs, where each regular graph is obtained by a (κ, τ) -regular extension defined by a κ -regular graph H such that $V(H)$ is a (κ, τ) -regular set of the extended regular graph, is introduced. Finally, some results on the multiplicity of the eigenvalue $\kappa - \tau$ are presented.

- [1] D.M. Cardoso, D. Cvetkovic, Graphs with least eigenvalues -2 attaining a convex quadratic upper bound for the stability number, *Bull. Acad. Serbe Sci. Arts, Cl. Sci. Math. Natur., Sci. Math.* **CXXXIII**(31), pp. 41-55, 2006.
- [2] D. M. Cardoso, P. Rama, Spectral results on regular graphs with (k, τ) -regular sets, *Discrete Mathematics* **307**, pp. 1306-1316, 2007.
- [3] D. Cvetković, P. Rowlinson, S. Simić, Spectral Generalizations of line graphs: on graphs with least eigenvalue -2 , *Cambridge University Press*, Cambridge, 2004.