

Marc Demange

Professor,
Department
Information
Systems and
Decision Sciences



Contact

✉ **Mail:**

demange@essec.edu
✉ Avenue Bernard
Hirsch.
BP 50105
95021 Cergy Pontoise
cedex
FRANCE

Education

HDR (Computer Science), Paris-Dauphine University

PHD (Doctoral Thesis), Computer Science, Paris I University

Research Master (DEA) Modeling and Mathematical Methods for Economy, Paris I University-Ecole Polytechnique

Agrégation (French Diploma for Teaching), Mathematics (Probability)

Ecole Normale Supérieure de Cachan (French school for teaching and research career), Mathematics

Research Areas

Operations research, Combinatorial optimization, Modeling, Approximation of hard problems, On-line algorithms, Combinatorial inverse optimization

Publications

✉ Academic Publications

Articles

"Weighted coloring on planar, bipartite and split graphs: complexity and approximation " (M. Demange, B. Escoffier, J. Monnot, V. Paschos, D. Dominique), *Discrete Applied Mathematics*, Feb. 2009, Vol. 157, Issue 4, p. 819-832

"A tutorial on the use of graph coloring for some problems in robotics" (M. Demange, T. Ekim, D. De Werra), *European Journal of Operational Research*, Jan. 2009, Vol. 192, Issue 1, p. 41- 55

"The 0-1 inverse maximum stable set problem" (M. Demange, Y. Chung), *Discrete Applied Mathematics*, Jul. 2008, Vol. 156, Issue 13, p. 2516-2516 (A preliminary version appeared in the proceedings of Francoro conference, 2007, PUG, pp. 47-55)

"Time Slot Scheduling of Compatible Jobs" (M. Demange, D. De Werra, J. Monnot, V. Paschos), *Journal of scheduling*, Apr. 2007, Vol. 10, Issue 2, p. 111- 127

"On the approximation of Min Split-coloring and Min Cocoloring" (M. Demange, D. De Werra, T. Ekim), *Journal of Graph Algorithms and Applications*, Dec. 2006, Vol. 10, Issue 2, p. 297-315

"(p,k)-coloring Problems in Line-graphs" (M. Demange, T. Ekim, D. De Werra), *Theoretical Computer Science*, Dec. 2005, Vol. 349, Issue 3, p. 462-474

"Completeness in Differential Approximation Classes" (M. Demange, G. Ausiello, C. Bazgan, V. Paschos), *International Journal of Foundations of Computer Science* , Dec. 2005, Vol. 16, Issue 6, p. 179-188 (prelim. version

in Proc. of MFCS 2003, LNCS 2747)

"Partitioning Cographs into Cliques and Stable Sets" (M. Demange, T. Ekim, D. De Werra), *Discrete Optimization*, June 2005, Vol. 2, Issue 2, p. 145-153

"On-line Maximum Order Induced Hereditary Subgraphs Problems" (M. Demange, X. Paradon, V. Paschos), *International Transactions in Operational Research*, Mar. 2005, Vol. 12, Issue 2, p. 185-201

"On-line Vertex Covering" (M. Demange, V. Paschos), *Theoretical Computer Science*, Feb. 2005, Vol. 332, Issue 1, p. 83-108

"A Hypocoloring Model for Batch Scheduling" (M. Demange, D. De Werra, J. Monnot, V. Paschos), *Discrete Applied Mathematics*, Feb. 2005, Vol. 146, Issue 1, p. 3-26

"Polynomial Approximation Algorithms with Performance Guarantees: An Introduction-by-example" (M. Demange, V. Paschos), *European Journal of Operational Research*, Jan. 2005, Vol. 165, p. 555-568

"Improved Approximations for Weighted and Unweighted Graph Models" (M. Demange, V. Paschos), *Theory of Computing Systems*, Jan. 2005, Vol. 38, Issue 6, p. 102-113

"Algorithmes d'approximation : un petit tour en compagnie d'un voyageur de commerce" (M. Demange), *La Gazette des Mathématiciens*, Oct. 2004, Issue 102, p. 51-90

"Algorithms for the On-line Quota Traveling Salesman Problem" (M. Demange, G. Ausiello, L. Laura, V. Paschos), *Information Processing Letters*, Jan. 2004, Vol. 92, Issue 2, p. 89-94

"Reducing Off-line to On-line: An Example and its Applications" (M. Demange), *Yugoslav Journal of Operations Research*, Jan. 2003, Vol. 13, Issue 1, p. 3-24

"Differential Approximation Results for the Steiner Tree Problem" (J. Monnot, V. Paschos), *Applied Mathematics Letters*, Jan. 2003, Issue 16, p. 733-739

"Autour de nouvelles notions pour l'analyse des algorithmes d'approximation : de la structure de NPO à la structure des instances" (M. Demange, V. Paschos), *RAIRO Operations Research*, Jan. 2002, Vol. 36, Issue 4, p. 311-350

"Autour de nouvelles notions pour l'analyse des algorithmes d'approximation : formalisme unifié et classes d'approximation" (V. Paschos), *RAIRO Operations Research*, Jan. 2002, Vol. 36, Issue 3, p. 237-277

"Maximizing the number of unused bins" (M. Demange, J. Monnot, V. Paschos), *Foundations of Computing and Decision Sciences*, Jan. 2001, Vol. 26, p. 169-186

"Approximating values and solutions of NP-optimization problems: concepts and examples" (J. Lorenzo), *Foundations of Computing and Decision Sciences*, Jan. 2001, p. 145-168

"Bridging gap between standard and differential polynomial approximation : the case of bin-packing" (J. Monnot, V. Paschos), *Applied Mathematics Letters*, Jan. 1999, p. 127-133

"A note on the approximation of a minimum-weight maximal independent set" (M. Demange), *Computational Optimization and Applications*, Jan. 1999, p. 157-169

"Asymptotic differential approximation ratio: definitions, motivations and application to some combinatorial problems" (V. Paschos), *RAIRO-Operations Research*, Jan. 1999, p. 481-507

"Differential approximation algorithms for some combinatorial optimization problems" (P. Grisoni, V. Paschos), *Theoretical Computer Science*, Jan. 1998, p. 107-122

"The approximability behaviour of some combinatorial problems with respect to the approximability of a class of maximum independent set problems" (V. Paschos), *Computational Optimization and Applications*, Jan. 1997, p. 307-324

"Improved approximations for maximum independent set via approximation chains" (V. Paschos), *Applied Mathematics Letters*, Jan. 1997, p. 105-110

"A generalization of Koenig-Egervary graphs and a new heuristic for maximum independent set problem with improved approximation ratios" (V. Paschos), *European Journal of Operational Research*, Jan. 1997, p. 580-592

"Valeurs extrémales d'un problème d'optimisation combinatoire et approximation polynomiale" (V. Paschos), *Mathématiques, Informatique et Applications aux sciences de l'Homme*, Jan. 1996, p. 51-66

"On an approximation measure founded on the links between optimization and polynomial approximation theory" (V. Paschos), *Theoretical Computer Science*, Jan. 1996, p. 117-141

"L'approximabilité de la couverture de sommets et d'un problème de programmation convexe par rapport à celle d'une classe de problèmes de stabilité" (V. Paschos), *Notes aux Comptes Rendus de l'Académie des Sciences de Paris*, Jan. 1995, p. 645-648

"Quelques résultats dans le cadre d'une nouvelle théorie de l'approximation polynomiale" (P. Grisoni, V. Paschos), *Notes aux Comptes Rendus de l'Académie des Sciences de Paris*, Jan. 1994, p. 289-292

"Approximation algorithms for minimum set covering problem : a survey" (V. Paschos), *Foundations of Computing and Decision Sciences*, Jan. 1994

"Approximation results for the minimum graph coloring problem" (P. Grisoni, V. Paschos), *Information Processing Letters*, Jan. 1994, p. 19-23

"Quelques étapes vers la conciliation de la théorie d'approximation polynomiale et celle d'optimisation : une nouvelle théorie d'approximation polynomiale et résultats préliminaires" (V. Paschos), *Notes aux Comptes Rendus de l'Académie des Sciences de Paris*, Jan. 1993, p. 409-414

Book Chapters

Weighted edge coloring. In: *Combinatorial optimization and theoretical computer science* (with B. Escoffier, G. Lucarelli, I. Milis, J. Monnot, V. Paschos, D. De Werra). Hoboken (USA) : WILEY, Vangelis Th. Paschos. 2008

Complexity and approximation results for the min weighted node coloring problem. In: *Combinatorial optimization and theoretical computer science* (with B. Escoffier, J. Monnot, V. Paschos, D. De Werra). Hoboken (USA) : WILEY, Vangelis Th. Paschos. 2008

The Online Track Assignment Problem. In: *Combinatorial Optimization and Theoretical Computer Science* (with G. Di Stefano, B. Leroy-beaulieu).

Hoboken (USA) : WILEY, Vangelis Th. Paschos. 2008

Une introduction aux problèmes combinatoires inverses. In: *Optimisation combinatoire 2* (with J. Monnot). Paris (France) : Hermes Sciences, Paschos V.T.. 2005

Approximation polynomiale. In: *Optimisation combinatoire 2* (with V. Paschos). Paris (France) : Hermes Sciences, Paschos V.T.. 2005

📖 Other Publications

Articles published in Conference Proceedings

"Minimum maximal matching is NP-hard in regular bipartite graphs", With T. Ekim. In : *Lecture Notes in Computer Sciences 4978*, Theory and Applications of Models of Computation, TAMC 2008. Xi'an (China) : Springer, 2008, p. 364-374

"Some Inverse Traveling Salesman Problems", With Y. Chung. In : *Electronic Notes in Discrete Mathematics 30*, IV Latin-American Algorithms, Graphs and Optimization Symposium. Puerto Varas (Chile) : Elsevier, 2008, p. 9-14

"Online Bounded Colorings", With G. Di Stefano, B. Leroy-beaulieu. In : *Electronic Notes in Discrete Mathematics 30*, IV Latin-American Algorithms, Graphs and Optimization Symposium. Puerto Varas (Chile) : Elsevier, 2008, p. 213-218

"Inverse booking problem: inverse chromatic number problem in interval graphs", With Y. Chung, J. Culus. In : *Lecture Notes in Computer Sciences 4921*, WALCOM: Algorithms and Computation. Dhaka (Bangladesh) : Elsevier, 2008, p. 180-187

"On-line Bin-packing Problem: Maximizing the Number of Unused Bins", With B. Kouakou, E. Soutif. In : *Actes du 7ème Congrès de la Société Française de Recherche Opérationnelle et d'Aide à la Décision*,. Lille (France) : Presses Universitaires de Valenciennes, 2006, p. 107-120

"Oriented Coloring: Complexity and Approximation", With J. Culus. In : *32rd Conference on Current Trends in Theory and Practice of Computer Science - LNCS 3831*,. Berlin (Germany) : Springer, 2006, p. 226-236

"On-line Computation and Maximum-weighted Hereditary Subgraph Problems", With B. Kouakou, E. Soutif. In : *Proceedings of the 16th International Symposium on Algorithms and Computation, ISAAC 2005: Algorithms and Computation. LNCS 3827*,. Sanya (China) : Springer, 2005

"The Hypercoloring Problem: Complexity and Approximability Results when the Chromatic Number is Small", With D. De Werra, J. Monnot, V. Paschos. In : *Proceedings of the 30th International Workshop, WG 2004*,. Bad Honnef (Allemagne) : TWTH, 2004

"Weighted Coloring on Planar, Bipartite and Split Graphs: Complexity and Improved Approximation", With D. De Werra, B. Escoffier, J. Monnot, V. Paschos. In : *Algorithms and Computation: 15th International Symposium, ISAAC 2004. Lecture Notes in Computer Science (LNC 3341)*,. Hong Kong (Chine) : Springer Verlag, 2004

"Weighted Node Coloring: When Stable Sets Are Expensive", With D. Werra (de), J. Monnot, V. Paschos. In : *Proceedings of the 28th International*

Workshop, Graph Theoretic Concepts in Computer Science, WG 2002. Cesky Krumlov (République Tchèque) : Springer, 2002, p. 114-125

"Two-steps combinatorial optimization", With V. Paschos. In : *Constraint Programming & Logic Programming: Workshop OLCP'01: On-line Combinatorial Problem Solving and Constraint Programming*, Paphos (Cyprus) : THALES Research and Technology, 2001

"Constructive - non Constructive approximation and maximum independent set problem", With V. Paschos. In : *Lecture Notes in Computer Science, Vol. 1120, Proc. of CCS'95*. : Springer Verlag, 1996, p. 194-207

Other Activities

📌 Scientific Activities

Editorial Board Membership

Mathematics and Social Science, EHESS

📌 Affiliations and Academic Responsibilities

External member of CERMSEM, Université Paris I ;
Member of the French society of operations research (ROADEF);
In charge of the track "Combinatorial Optimization" of "GDR Algorithmique, Langage et Programmation" (National Research Council - CNRS) (2002 - 2005)

In charge of the track "Combinatorial Optimization" of "GDR Recherche Opérationnelle" (National Research Council - CNRS) (2005 - present)

📌 Professional Experience

Professor, ESSEC, DIS department (2005-present)

Associated professor, ESSEC, DIS department (2001-2005)

Visiting professor (one month per year), Ecole Polytechnique Fédérale de Lausanne, Chair "ROSE", Switzerland (2003 - 2007)

Assistant professor, Computer Science, Paris I University (1994-2001)