

**Laurent
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**Professor,
Department
Information
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Department chair



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Education

International Teachers Program (ITP) 2010, Kellogg Business School
Doctorate in Operations Research, Paris-Dauphine University
Master of Research in Management Science, Paris-Dauphine University
ESSEC M.Sc
DEUG Mathematics & Social Sciences, Paris-Dauphine University

Research Areas

Areas

Operations Research & optimal planning of operations
Combinatorial Optimization
Approximation heuristics and Column Generation methods

Sectors

Supply-Chain Management, Transportation and Logistics
Facility location and Network Design
Human Resources (HR) planning

On-going Projects

- Hybridization of column generation techniques and approximation heuristics for large-scale Covering Integer Programs, with J. Sadki, A. Plateau and A. Nagih (application to railway transportation and agricultural production)
- New formulations and Branch & Cut methods for some Traveling Salesman Problem variants, with S. Borne, L. Létocart and P. Pesneau
- Approximation methods for variants of Set Covering problems, with J. Monnot
- ANR TODO (Time vs Optimality in Discrete Optimization), Dir. V. Paschos
- ANR MODUM : Sustainable city logistics, with D. Feillet, L. Létocart, F. Meunier, R. Wolfler-Calvo
- Challenge ROADEF 2011 : Optimal planning of EDF nuclear plants outages and production (Dir. R. Wolfler-Calvo)

Publications

✉ Academic Publications

Articles

"A note on the Clustered Set Covering Problem" (L. Alfandari, J. Monnot), *Discrete Applied Mathematics*, Issue (to appear)

"A MIP flow model for crop-rotation planning in a sustainable development context." (L. Alfandari, J.L. Lemalade, A. Nagih, G. Plateau), *Annals of Operations Research*, Oct 2011, Vol. 190, Issue 1, p. 149- 164

"Edge cover by connected bipartite subgraphs" (L. Liberti, L. Alfandari, MC. Plateau), *Annals of Operations Research*, Sep 2011, Vol. 188, Issue 1, p. 307-329

"Improved approximation of the Soft-Capacitated facility Location Problem" (L. Alfandari), *RAIRO Operations Research*, Mar 2007, Vol. 41, p. 83- 93

"The Minimum Bounded-Diameter Spanning Forest Problem Is Log-Approximable" (L. Alfandari), *Foundations of Computing and Decision Sciences*, Jan 2001, p. 123-132

"Master-slave Strategy and Polynomial Approximation" (L. Alfandari, V. Paschos), *Computational Optimization and Applications*, Sep 2000, Vol. 16, Issue 3, p. 231-245

"Approximating Minimum Spanning Tree of Depth 2" (L. Alfandari, V. Paschos), *International Transactions in Operations Research*, Jun 1999, Vol. 6, p. 607-622

Book Chapters

Airline Crew Pairing Optimization. In: *Applications of Combinatorial Optimization* (with A. Nagih). : Wiley, V. Th. Paschos. 2010, p. 1-22

Optimisation de la construction de rotations d'équipages en transport aérien. In: *Optimisation combinatoire 3. Applications (traité IC2)* (with A. Nagih). Paris (France) : Hermes. Lavoisier, PASCHOS V.T.. 2006

A Path Relinking Algorithm for the Generalized Assignment Problem. In: *Metaheuristics Computer Decision-making* (with A. Plateau, P. Tolla). Boston (Etats-Unis) : Kluwer Academic Publishers, Resende M.G.C., de Sousa J.P. (eds.). 2004

Working Papers

"Improved Approximation of the General Soft-Capacitated Facility Location Problem" (L. Alfandari). Essec Research Center, DR-05003 Mar 05.

"Choice Rules with Size Constraints for Multiple Criteria Decision Making" (L. Alfandari). Essec Research Center, DR-04002 Jan 04.

"A Path-relinking Algorithm for the Generalized Assignment Problem" (A. Plateau, P. Tolla). Essec Research Center, DR-02007 Apr 02.

Other Publications

Articles published in Conference Proceedings

"Aproximation of the Clustered Set Covering Problem", With J. Monnot. In : *Electronic Notes in Discrete Mathematics*, ISCO 2010, Hammamet. : ISCO, 2010

"Une approche de modélisation générique pour la gestion des locomotives fret à la SNCF", N. Marcos, D. de Almeida, D. Gauyacq, A. Nagih, G. Plateau ", With N. Marcos, D. De Almeida, D. Gauyacq, A. Nagih, G.

Plateau. In : *Proceedings Conference ROADEF 2005*, ROADEF 2005, Tours. (France) : , 2005

"On the Approximation of Some Spanning Arborescence Problems", With V. Paschos. In : *Advances in Computer and Information Sciences '98. 13th International Symposium on Computer and Information Sciences (ISCIS)*, Antalya (Turquie) : los Press, Ohmsha, 1998, p. 574-581

Teaching

▣ Teaching at ESSEC

Operations Research

Operations Management

Decision Theory

Computer-aided Decision Making

Business Mathematics & Statistics

▣ Other Teaching Activities

Academic Director of the ESSEC Business School Specialized Master in Logistics and Supply-Chain Management (2009-2011)

Academic supervisor of the Bachelor period of the ESSEC Grande Ecole programme (2006-2008).

Other Activities

▣ Scientific Activities

Conference Presentations

International conferences:

EURO XXIV, Lisboa, July 2010 : "A column generation approach for scheduling nuclear power plants refueling" with R. Wolfler-Calvo, A. Rozenknop, D. Chemla, L. Létocart, G. Turri

CIRO, Marrackech, 2010 : "Hybridization of column generation and greedy schemes for transportation planning problems", with J. Sadki, A. Plateau, A. Nagih

ISCO 2010, Hammamet : "Approximation of the Clustered Set Covering Problem" with J. Monnot

ISMP 2009, Chicago, August 24-28, 2009 : "A hybrid approach combining column generation and approximation heuristics for large-scale Covering Integer Programs", with J. Sadki, A. Plateau and A. Nagih

IFORS 2008, Johannesburg, July 13-18, 2008 : "Approximation of generic locomotive assignment problems" J. Sadki, A. Plateau, A. Nagih

NCP 07, Rouen, 2007 : "Linear and quadratic formulations of the asymmetric Traveling Salesman Problem", with L. Létocart, S. Borne

EURO XXII, Prague, July 8-11, 2007: "A greedy approximation algorithm for

the soft-capacitated facility location problem"

6th CTW Workshops on Graphs & Combinatorial Optimization, Enschede, Netherlands, May 29-31, 2007: "Edge cover by bipartite subgraphs" with M.C. Plateau and L. Liberti

EURO XXI, Reykjavik, July 3-6, 2006: "A MIP flow model for crop rotation planning in a sustainable development context", with J.L. Lemalade, A. Nagih and G. Plateau

EURO XX, Rhodos, July 4-7, 2004: "Boolean inverse optimization problems", with M. Demange and J. Monnot

CO'02 (12th Intl Symp. on Combinatorial Opt.), Paris, Apr. 8-10, 2002: "A path-relinking metaheuristic for the Generalized Assignment Problem", with A. Plateau and P. Tolla.

MIC 2001 (Metaheuristics Intl Conf.), Porto, Jul. 16-20, 2001: "A two-phase path-relinking algorithm for the Generalized Assignment Problem", with A. Plateau and P. Tolla.

CLAIO X (10th Latin-Ibero-American Conf. on Op. Res. and Syst.), Mexico, Sept. 4-8, 2000: "Logical Definability of Covering and Partitioning Minimization Problems."

ISCIS XIII (Intl Symp. on Comp. and Inf. Sc.), Antalya, Oct. 26-28, 1998: "On the Approximation of Some Spanning-Arborescence Problems", with V. Paschos.

FRANCORO II (2è Journées Francophones de RO), Sousse, 6-8 avr. 2000 : "Une approche heuristique pour des problèmes d'affectation de personnel appliqués au transport ferroviaire", with S. Gabteni.

EURO XV/ INFORMS XXXIV, Barcelona, Jul 13-16, 1997: "Approximating the Minimum Weight Rooted Spanning Tree with Radius Less Than Two."

National conferences :

ROADEF 2008 (French OR Society), Clermont-Ferrand, february 25-27, "Approximation du problème générique d'affectation de locomotives" with J. Sadki, A. Plateau and A. Nagih.

ROADEF 2008 " Modèles linéaires et quadratiques pour le problème du voyageur de commerce assymétrique" with L. Létocart and S. Borne.

ROADEF 2006, Lille, february 6-8 2006, "Un modèle de planification des rotations culturelles dans un contexte de lutte contre la déforestation à Madagascar" with J.L. Lemalade, A. Nagih and G. Plateau

ROADEF 2005, Tours, february 2005, "Une approche de modélisation générique pour la gestion des locomotives frêt à la SNCF", N. Marcos, D. de Almeida, D. Gauyacq, A. Nagih, G. Plateau

ROADEF 2003, Avignon, 26-28 fev 2003, "Modeles de localisation pour l'Aide Multicritere a la Decision"

ROADEF II, Autrans, 12-15 jan 1999, "Une heuristique avec garantie de performance pour le problème d'arbre recouvrant euclidien de diamètre 4."

ROADEF I, Paris, 14-16 jan 1998, "Le problème de la forêt minimum de diamètre k."

MODE 5(Math. de l'Opt. et de la Déc.), Paris, 19-21 mar 1997, "Approximation du problème de l'arbre recouvrant de poids minimum de profondeur 2."

📌 Affiliations and Academic Responsibilities

Member of the French OR Society (ROADEF)

Member of GREFELOT research group on transportation optimization
Reviews for international journals European Journal of Operational
Research, Computational Optimization and Applications, Annals of
Operations Research, RAIRO Operations Research, Discrete Applied
Mathematics

▣ **Consulting and Other Activities**

Consulting activities & industrial contracts : SNCF, Essec BS,
Babcok-Wanson, Aid-Impact...

▣ **Professional Experience**

Professor at ESSEC Business School (2000-)
Member of LIPN laboratory, Paris XIII University (2002-)
Teaching activities at Paris-Dauphine University (1995-2000)
Member of the LAMSADE laboratory, Paris-Dauphine University
(1995-2002)