

# CURRICULUM VITAE

Michèle Breton

July 15, 2011

---

Contact: HEC Montreal  
Management Science  
3000, chemin de la Côte-Sainte-Catherine  
Montreal, Québec  
Canada H3T 2A7  
Phone: (514) 340-6490  
[Michele.Breton@hec.ca](mailto:Michele.Breton@hec.ca)  
<http://www.hec.ca/pages/michele.breton/>

Languages: French, English, Spanish

## **EDUCATION**

1987 University of Montreal, Department of Computer Science and Operations Research.  
Ph. D. Computer Science. *Equilibriums for Sequential Games*  
Director: Alain Haurie

1977 Polytechnique of Montreal, Department of Industrial Engineering  
M. Ing. Operations Research. *Maximal coupling in a graph*  
Director: Jean-Claude Picard

1975 Polytechnique of Montreal, Department of Industrial Engineering  
B.Sc.A. Industrial engineering, operations research  
Project: *Distribution of petroleum products at ESSO*  
Director: Jean-Claude Picard

## **EXPERIENCE**

Since 06/94 Full Professor, Department of Management Sciences  
HEC Montreal

06/05 – 06/06 Visiting Professor, Department of Applied Mathematics  
Universidad de Valladolid

08/98 – 07/99 Visiting Professor, Department of Business  
Instituto Tecnológico Autónomo de México

06/89 – 06/94 Associate Professor, Department of Management Sciences  
HEC Montreal

06/86 – 06/89 Assistant Professor, Department of Management Sciences  
HEC Montreal

01/77 – 06/86 Lecturer, Department of Management Sciences and Department of Production and Operations  
Management  
HEC Montreal

01/76 – 01/77 Research assistant and lecturer, Department of Industrial Engineering  
Polytechnique of Montreal

06/75 – 01/77 Lecturer, Department of Civil Engineering  
Ahuntsic College  
Collège du Vieux-Montreal

## ***DISTINCTIONS***

- Elected to the Royal Society of Canada, 2009.
- Pierre-Laurin 2004 Award, best research production in 2001-2004, full professors and researchers, HEC Montreal.
- Guest editor, *Annals of the International Society of Dynamic Games*, 2009.
- Guest editor, *Applications of OR in Finance*, Special Issue of *Computers & Operations Research*, 2008.
- Guest editor, *Applications of Dynamic Games*, Special Edition of *International Game Theory Review*, 2008.

## ***INTERNAL ADMINISTRATIVE POSITIONS***

06/06 – Director, Centre for Research on e-finance  
06/06 – Director, LACED scientific computation lab  
06/08 – 06/11 President of the College of Professors  
04/03 – 06/05 Director, LACFAS  
01/03 – 06/05 Director, Centre for Research on e-finance  
09/01 – 01/03 Director, Ph.D. program  
08/99 – 01/03 Director, M.Sc. Program  
06/95 – 05/98 Director, Department of Quantitative Methods in Management  
04/91 – 08/93 Co-director, ESSEC-HEC (university cooperation, at Douala, Cameroon)

## SCIENTIFIC ACTIVITIES

### PUBLICATIONS

#### Books

1. Breton, M. and K. Sadowski, editors, *Advances in Dynamic Games: Theory, Applications and Numerical Methods for Differential and Stochastic Games*, *Annals of the International Society of Dynamic Games*, Volume 11, Springer, 2011.
2. Breton, M. and H. Ben Ameur (editors), *Numerical Methods in Finance*, Springer, 2005.
2. Breton, M. and G. Zaccour (editors), *Industrie pétrolière: outils d'aide à la décision et études de cas*, Paris, Éditions Technip, 1994.
3. Breton, M. and G. Zaccour (editors), *Advances in Operations Research in the Oil and Gas Industry*, Paris, Éditions Technip, 1991.
4. Breton, M. and A. Haurie, *Initiation aux techniques classiques de l'optimisation*, 1<sup>st</sup> ed., Montreal, Modulo, 1983, 2<sup>nd</sup> ed., Montreal, Modulo, 1986.

#### Proceedings

1. Breton, M. and G. Zaccour (editors), *Proceedings of the Sixth International Symposium on Dynamic Games and Applications*, Montreal, 1994, 682 p.
2. Breton, M. (editor), *Proceedings of the ASAC Conference 1984, Management Science section*, 1984.

#### Scientific edition

1. Breton, M., guest editor, *Applications of OR in Finance*, special issue of *Computers & Operations Research*, **35-1**, January 2008.
2. Breton, M. and G. Martín-Herran, guest editors, *Dynamic Games Applications and Methods*, special issue of *International Game Theory Review*, **10-1**, March 2008.

#### Papers in Scientific Journals

1. Breton, M. and M. Y. Keoula, «Farsightedness in a Coalitional Great Fish War», *Cahiers du GERAD G-2010-50*, September 2010, forthcoming in *Environmental and Resource Economics*.
2. Mafakheri, F., M. Breton and S. Chauhan, «Project-to-Organization Matching: An Integrated Risk Assessment Approach», forthcoming in *International Journal of Information Technology Project Management*.
3. Ben Abdallah, R., H. Ben Ameur and M. Breton, «Pricing the CBOT T-Bonds Futures with empirical applications», forthcoming in *Quantitative Finance*.
4. Makhaferi, F., M. Breton, et A. Ghoniem, «Supplier Selection-Order Allocation: A Two-Stage Multiple Criteria Dynamic Programming Approach», *International Journal of Production Economics* **132**, July 2011, pp. 52–57.
5. Breton, M., J. Hugonnier and T. Masmoudi, "Mutual Fund Competition in the Presence of Dynamic Flows", *Automatica* **46**, 2010 p. 1176-1185.
6. Breton, M. and J. de Frutos, "Option Pricing under GARCH Processes by PDE Methods", *Operations Research* **58**, July - August 2010, pp. 1148-1157.
7. Breton, M., L. Sbragia and G. Zaccour, "A Dynamic Model for International Environmental Agreements", *Environmental and Resource Economics*, **45-1**, January 2010, p. 25-48.

8. Breton, M. and M. Kharbach, "Who benefits from price indexation?", *Economics Bulletin* vol 29 no. 4, 2009.
9. Breton, M., O. Bahn, L. Sbragia and G. Zaccour, "Stability of International Environmental Agreements: an Illustration with Asymmetrical Countries", *International Transactions on Operational Research* 16, 2009, p. 307–324.
10. Ben Abdallah, R., H. Ben Ameer and M. Breton, "An Analysis of the True Notional Bond System Applied to the CBOT T-Bond Futures", *Journal of Banking and Finance* 33, 2009, p. 534-545. **Esdras Minville award for the best student paper 2009.**
11. Ben Ameer, H., M. Breton and J. Martinez, "A Dynamic Programming Approach for Pricing Derivatives in the GARCH Model", *Management Science* 55-2, February 2009, p. 252–266.
12. Breton, M. and M. Kharbach, "The Welfare Effects of Unbundling Gas Storage and Distribution", *Energy Economics* 30, May 2008, p. 732-747.
13. Breton, M., A. Sokri et G. Zaccour, "Incentive Equilibrium in an Overlapping-Generations Environmental Game", *European Journal of Operational Research* 185-2, March 2008, p. 687-699.
14. Breton, M., D. Dupuis and G. Laporte, "100 ans d'histoire en méthodes quantitatives", *Gestion* 32-3, Fall 2007, p. 12-20.
15. Ben Ameer, H., M. Breton, P. L'Écuyer and L. Karoui, "A Dynamic Programming Approach to Price Options Embedded in Bonds", *Journal of Economic Dynamics & Control* 31, 2007, p. 2212-2233.
16. Breton, M., G. Martin-Herran and G. Zaccour, "Equilibrium Investment Strategies in Foreign Environmental Projects", *Journal of Optimization Theory and Applications* 130-1, July 2006, p. 23-40.
17. Breton, M., R. Jarrar and G. Zaccour, "A Note on Feedback Stackelberg Equilibrium in a Lanchester Model with Empirical Application", *Management Science* 52-5, May 2006, p. 804-811.
18. Ben Ameer, H., M. Breton and P. François, "A Dynamic Programming Approach to Price Installment Options", *European Journal of Operational Research* 169-2, Mach 2006, p. 667-676.
19. Breton, M., D. Vencatachellum and G. Zaccour, "Dynamic R&D with Strategic Behavior", *Computers and Operations Research* 33-2, February 2006, p. 426-437.
20. Breton, M., K. Fredj and G. Zaccour, "International Cooperation, Coalitions Stability and Free-riding in a Game of Pollution Control", *The Manchester School*, 74-1, January 2006, p. 103-122. **SSRN Top ten downloads.**
21. Breton, M., G. Zaccour and Zahaf, "A Game-Theoretic Formulation of Joint Implementation of Environmental Projects", *European Journal of Operational Research* 168-1, January 2006, pp. 221-239.
22. Breton, M., G. Zaccour and M. Zahaf, "A Differential Game of Joint Implementation of Environmental Projects", *Automatica* 41-10, October 2005, p 1737-1749.
23. Breton, M., A. Turki and G. Zaccour, "Dynamic Model of R&D, Spillovers and Efficiency of Bertrand and Cournot Equilibria", *Journal of Optimization Theory and Applications*, 123-1, October 2004, p. 1-25.
24. Breton, M., S. Hachem and A. Hammadia, "Accounting for Losses in the Optimization of Production of Hydroplants", *IEEE Transactions on Energy Conversion*, 19-2, June 2004, p. 346-351.
25. Brimberg, J., P. Hansen, K.W. Lih, N. Mladenovic and M. Breton, "An Oil Pipeline Design Problem", *Operations Research*, 51-2, March-April 2003, p. 228-239.
26. Breton, M., P. St-Amour and D. Vencatachellum, "Dynamic Production Teams with Strategic Behavior", *Journal of Economic Dynamics and Control*, 27-5, December 2002, p. 875-905.
27. Ben Ameer, H., M. Breton, and P. L'Écuyer, "A Dynamic Programming Procedure for Pricing American-Style Asian Options", *Management Science* 48, May 2002, p. 625-643.
28. Breton, M., S. Hachem and A. Hammadia, "A Decomposition Approach for the Solution of the Unit Loading Problem in Hydroplants", *Automatica*, 38-3, March 2002, p. 477-485.
29. Breton, M. and G. Zaccour, "Equilibria in an Asymmetric Duopoly Facing a Security Constraint", *Energy Economics*, 23-4, May 2001, p. 457-475.

30. Breton, M., G. Zaccour and F. Chauny, "Leader-Follower Dynamic Game for New Product Diffusion", *Journal of Optimization Theory and Applications* **92-1**, January 1997, p. 77-98.
31. Breton, M. and S. El Hachem, "Algorithms for the Solution of Stochastic Dynamic Minimax Problems", *Computational Optimization and Applications* **4-4**, 1995, p. 317-345.
32. Breton, M. and S. El Hachem, "A Scenario Aggregation Algorithm for the Solution of Stochastic Dynamic Minimax Programs", *Stochastics and Stochastic Reports* **53**, 1995, p. 305-322.
33. Breton, M., "Optimal Participation Rate Under Risk", *Energy Economics* **15-2**, April 1993, p. 101-104.
34. Breton, M. and P. L'Écuyer, "Noncooperative Stochastic Games Under a N-stage Local Contraction Assumption", *Stochastics and Stochastic Reports* **26**, 1989, p. 227-245.
35. Breton, M, A. Alj and A. Haurie, "Sequential Stackelberg  $\epsilon$ -equilibria in Two-Person Games", *Journal of Optimization Theory and Applications* **59**, 1988, p. 71-97.
36. Breton, M., J. Filar and A. Haurie, "On the Computation of Equilibria in Discounted Stochastic Dynamic Games", *Journal of Economics Dynamics and Control* **10**, 1986, p. 33-36.
37. Haurie, A. and M. Breton, "Market Equilibrium in a Multistage Commodity Network", *Automatica*, **21-5**, 1985, p. 585-597.

### Book Chapters

1. Breton, M., Approximation of Dynamic Programs, *Handbook of Computational Finance*, éd. par J.C. Duan, W. Härdle et J. E. Gentle, Springer, July 2011.
2. Breton, M. and A. Turki, "Efficiency of Bertrand and Cournot: A Two Stage Game". in *Dynamic Games: Theory and Applications*, ed. by A. Haurie and G. Zaccour, Springer, 2005, p. 161-173.
3. Breton, M., A. Turki and G. Zaccour, "Efficiency of Bertrand and Cournot under Precommitment", in *Game Theory and Applications*, vol. 10, ed. by V. Mazalov et L. Petrosjan, Nova Science, 2005, p. 31-38.
4. Ben Ameer, H., M. Breton and P. L'Écuyer, "Partial Hedging for Options Based on Extreme Values and Passage Times", *Advances in Computational Management Science 4: Decision and Control in Management Science*, essays in honor of Alain Haurie, ed. by Georges Zaccour, Kluwer, 2002, p. 179-200.
5. El Hachem S., A. Hammadia, F. Welt and M. Breton, "Dynamic Models for Real Time Management of Hydroplants", in *Hydropower '97*, ed. by Flatabo and Helland-Hansen, Balkema, Rotterdam, 1997, p. 341-346.
6. Breton, M., A. Yezza, G. Zaccour, "Feedback Stackelberg Equilibria in a Dynamic Game of Advertising Competition: A Numerical Analysis" *Dynamic Competitive Analysis in Marketing, Lecture Notes in Economics and Mathematical Systems*, vol. 1, ed. by S. Jorgensen and G. Zaccour, Springer-Verlag, Berlin, 1996, p. 1-26.
7. Breton, M. and S. El Hachem, "Algorithms for the Solution of a Large Scale Single-Controller Stochastic Game", *Annals of the International Society of Dynamic Games 1 - Advances in Dynamic Games and Applications*, ed. by T. Basar and A. Haurie, Birkhauser, 1994, p. 195-216.
8. Breton, M. and A. Lapointe, "Fiscalité pétrolière, potentiel pétrolier et risque d'exploration: le cas de dix pays", in *L'industrie des hydrocarbures: défis et opportunités*, ed. by A. Lapointe and H. Taghvaï, Technip, 1994, p. 203-218.
9. Breton, M., "Techniques d'analyse de risque en exploration production", in *Industrie pétrolière: outils d'aide à la décision et études de cas*, ed. by M. Breton and G. Zaccour, Paris, Technip, 1994, p. 1-22.
10. Breton, M. and S. El Hachem, "Planification des opérations de raffinage par la programmation linéaire stochastique", in *Industrie pétrolière: outils d'aide à la décision et études de cas*, ed. by M. Breton and G. Zaccour, Paris, Technip, 1994, p. 149-168.
11. Breton, M. and P. L'Écuyer, "Approximate Solutions to Continuous Stochastic Games", in *Lecture Notes in Control and Information Sciences 56 - Differential Games - Developments in Modelling and Computation*, ed. by R.P. Hamalainen and H. Ehtamo, Springer-Verlag, 1992, p. 257-264.

12. Breton, M. and S. El Hachem, "Application of Stochastic Programming to Medium and Long Term Planning in the Refining Industry", in ***Advances in Operations Research in the Oil and Gas Industry***, ed. by M. Breton and G. Zaccour, Paris, Technip, 1991, p. 1-20.
13. Breton, M. and G. Zaccour, "Sharing the Cost of a Pipeline: A Game Theoretic Approach", in ***Maritime and Pipeline Transportation of Oil and Gas - Problems and Outlook***, ed. by A. Poirier and G. Zaccour, Paris, Technip, 1991, p. 291-306.
14. Breton, M., "Algorithms for Stochastic Games", in ***Stochastic Games and Related Topics - Shapley Honor Volume***, ed. by T.E.S. Raghavan, T. S. Ferguson and O. J. Vrieze, Kluwer Publishing Company, 1991, p. 45-57.
15. Breton, M., A. Haurie and G. Zaccour, "Methods in the Analysis of Multi-stage Commodity Markets", in ***Control and Dynamic Systems 36 - Advances in Large Scale Systems Dynamic and Control***, ed. by T. C. Leondes, Academic Press, 1990, p. 75-105.
16. Breton, M. and P. L'Écuyer, "On the Existence of Sequential Equilibria in Markov Renewal Games", ***Advances in Optimization and Control, Lecture Notes in Economics and Mathematical Systems 302***, ed. by H.A. Eiselt and G. Pederzoli, Springer-Verlag, 1988, p. 200-213.
17. Breton, M., J. A. Filar, A. Haurie and T. A. Schultz, "On the Computation of Equilibria in Discounted Dynamic Games", in ***Dynamic Games and Applications in Economics, Lecture Notes on Economics and Mathematical Systems 205***, ed. by T. Başar, Springer-Verlag, Berlin, 1986, p. 64-87.

### Refereed Proceedings

1. Breton, M., K. Fredj and G. Zaccour, "Characteristic Functions, Coalitions Stability and Free-riding in a Game of Pollution Control", *Proceedings of the Tenth International Symposium on Dynamic Games and Applications*, vol. 1, July 2002, p. 129-138.
2. Ben Ameer, H., M. Breton and P. L'Écuyer, "Numerical Evaluation of American-Style Asian Options", *Proceedings of the International Conference on Mathematical Finance*, June 1999.
3. Breton, M., P. St-Amour and D. Vencatachellum, "Birds of a Feather: Teams as a Screening Mechanism", *Proceedings of the 8th International Symposium on Dynamic Games and Applications*, July 1998, p. 116-124.
4. El Hachem, S., A. Hammadia and M. Breton, "Extensions of the Unit Loading Problem", *Proceedings of Waterpower 97 Conference, American Society of Civil Engineers*, July 1997, p. 1114-1123.
5. Breton, M., A. Yezza and G. Zaccour, "Feedback Stackelberg Equilibria in a Dynamic Game of Advertising Competition: A Numerical Analysis". *Proceedings of the International Workshop on Dynamic Competitive Analysing Marketing*, September 1995, p. 43-55.
6. Breton, M., G. Zaccour and F. Chauny, "A Leader-Follower Dynamic Game for New Product Diffusion", *Proceedings of the Sixth International Symposium on Dynamic Games and Applications*, July 1994, p. 390-405.
7. Breton, M. and A. Haurie, "Two-Layer Piecewise Deterministic Games", *Proceedings of the 28th IEEE Conference on Decision and Control*, December 1989, p. 198-200.
8. Breton, M., "Calcul de points d'équilibre dans des jeux stochastiques : survol des algorithmes disponibles", *Proceedings of the ASAC Conference*, 1987, p. 76-87.
9. Breton, M., "Détermination d'un équilibre de Stackelberg dans un jeu stochastique par la programmation mathématique", *Proceedings of the ASAC Conference*, 1986, p. 35-43.
10. Breton, M. and A. Haurie, "Market Equilibrium in a Multi-stage Commodity Network", *Proceedings of the IFAC/IFORS/IIASA 4th Conference on the Modelling and Control of National Economies and the 1983 SEDC Conference on Economics Dynamics and Control*, June 1983, p. 281-286.
11. Breton, M. and A. Haurie, "Équilibre de marché dans un réseau multi-étage", *Proceedings of the ASAC Conference*, vol. 4, part 2, Vancouver, May 1983, p. 1-10.

## Unpublished Working papers

1. Annabi, A., M. Breton and P. François, « Game Theoretic Analysis of Negotiations under Bankruptcy», Cahiers du GERAD G-2011-25, May 2011, 20 pages. Submitted to *European Journal of Operational Research*.
2. Annabi, A., M. Breton and P. François, « Resolution of financial distress under Chapter 11 », Cahiers du GERAD G-2011-12, March 2011, 32 pages. In revision for *Journal of Economic Dynamics and Control*, SSRN Top Ten Downloads.
3. Baraket, C. and M. Breton, «Pricing By Fourier Transform: An Overview», Cahiers du GERAD G-2010-72, December 2010, 25 pages.
4. Breton, M., and M.Y. Keoula, « A Great Fish War Model with Asymmetric Players», Cahiers du GERAD G-2010-73, December 2010, 30 pages.
5. Breton, M. and M. Kharbach, «Transportation and Storage under a Dynamic Price Cap Regulation Process», Cahiers du GERAD G-2010-46, September 2010, 31 p, in revision for *Energy Economics*.
6. Ben Ameer, Hatem, M. Breton and P. François, "Pricing ASX Installment Warrants under GARCH", *Cahiers du GERAD G-2005-42*, May 2005, 17 p.
7. Breton, M., P. St-Amour and D. Vencatachellum, "Inter- vs Intra-generational Production Teams: A Young Worker's Perspective", *Cahiers du Cirano*, 2002s-57, *Cahiers du GERAD*, G-2002-29, June 2002, 20 p.
8. Breton, M. and G. Zaccour, "Le partage des coûts d'un pipeline: une approche par la théorie des jeux", *Cahiers du CETAI - Gestion d'entreprises pétrolières*, GEP-CR-92-01, 1992, 14 p.
9. Breton, M. and S. El Hachem, "Decomposition Algorithms for Stochastic Dynamic Programs", *Cahiers du GERAD*, G-91-15, 1991, 34 p.
10. Breton, M., "Équilibres dans des jeux séquentiels", *Ph.D. Thesis presented at DIRO, University of Montreal*, May 1986.

**RESEARCH GRANTS (last 6 years)**

Project	Agency	Program (principal*, co-researchers)	Amount	Years
Financial option pricing using Fourier Transforms	HEC	Internal Breton	5000\$	2010-2011
Dynamic Games in Management	NSERC	Breton	260 000\$	2010-2015
LACED Laboratory	CFI/MEQ	Leading Edge Fund Breton and 9 researchers	\$3 000 000	2009-2014
GERAD research centre	FQRNT	Strategic clusters Malhamé* and 30 chercheurs	2 340 000\$	2009-2014
Option pricing under GARCH	IFM2	Research support Breton	58 200\$	2009-2012
Sustainable environment cooperation agreements	SSHRC	Strategic research grant Breton and Zaccour*	153 200\$	2008-2011
Dynamic Problems in Management	NSERC	Discovery grant Breton	150 000\$	2005-2010
GERAD	Universities	Infrastructure Malhamé and 30 researchers	764 000\$	2005-2010
Credit risk and financial distress: a game theory approach	IFM2	Research support Breton	60 375\$	2006-2009
GERAD	FQRNT	Centres Zaccour* and 30 researchers	\$2 254 156	2003-2009
GERAD	FQRNT	Equipment Zaccour* and 30 researchers	\$398 156	2003-2009
Seminar Series	Mercure	Seminars Breton, Dionne, Normandin	\$40 000	2006-2010
Sustainable Agreements and Strategic Alliances: Applications in Environment and R & D	FQRSC	Research Teams Breton*, Benckekroun, Vencatachellum and Zaccour	\$348 500	2004-2008
LACFAS	CFI/MEQ	Innovation Rémillard* and 10 researchers	\$482 682	2004-2008
CREF	Mercure	Groups and Centres Breton* and 30 researchers	\$155 000	2003-2008
LACFAS	IFM <sup>2</sup>	Database Breton and members LACFAS	\$141 000	2003-2010
Survey on hedging by Canadian firms	Bank of Canada	Recherche François* and 5 researchers	20 000\$	2005-2007
LACFAS	CFI/MEQ	New Opportunities fund M. Breton and 8 researchers	\$92 114	2004-2007
Centre for Research on e-finance	SSHRC	Collaborative Research Initiatives (G. Dionne* and 20 researchers)	\$3 000 000	2002-2007
LACFAS	CFI/MEQ	New Opportunities fund Breton* and 8 researchers	\$413 448\$	2003-2006
Pricing implicit options	IFM2	Research Project Breton	\$60 000	2003-2006
Gas Transportation and Storage & PCR	HEC	Internal Breton	\$4 500	2004-2005
Dynamic Problems in Management	NSERC	Individual Breton	\$101 600	2001-2005

## CONFERENCES (last 6 years)

### ***Dynamics of Environmental Cooperation***, co-author L. Sbragia

- Evolutionary Approaches to International Cooperation Workshop, Tillburg Sustainability Center, Tillburg, The Netherlands, May 23-24 2011

### ***International Environmental Agreements with a Dynamic Number of Signatories***, co-author S. Garrab

- Optimization Days, Montreal, May 2-4 2011

### ***International Environmental Agreements with Uncertain Environmental Damage and Learning***, co-author L. Sbragia

- Game Theory Practice 8, Riverside, California, July 11-12 2011
- Towards Global Agreements on Environmental Protection and Sustainability, International Forum, University of Exeter, Exeter, U.K., April 13-15 2011
- Second Workshop on Dynamic Games in Economics, The Rimini Center for Economic Analysis, Rimini, Italy, December 13-14 2010
- Decision Analysis and Sustainable Development, Montreal, September 27-28 2010

### ***Approximation of Dynamic Programs***, co-author J. de Frutos

- Symposium for Computational Finance, National University of Singapore, Singapore, 28 – 29 June 2010

### ***Great Fish Wars with Asymmetric Players***, co-author M. Y. Keoula

- Computational Management science, Vienna, Austria, 28 – 30 July 2010
- 4th World Congress of Environmental and Resource Economists, Montreal, 28 June – 2 July 2010
- International Symposium of Dynamic Games, Banff, 20-23 June 2010
- Optimization Days, Montreal, 10-12 May 2010
- 3rd Workshop on Game Theory in Energy, Resources and Environment, Montreal, 10-11 December 2009

### ***A Spectral Method for Option Pricing under GARCH***, co-authors J. de Frutos and S. Serghini-Idrissi

- Mathematical Finance Days 2011, IFM2, Montreal, May 9-10 2011
- Optimization Days, Montreal, May 2-4 2011
- MITACS /CORS Joint annual conference, Edmonton, 25-28 May 2010
- Mathematical Finance Days 2010, Montreal, 13-14 May 2010
- Optimization Days, Montreal, 10-12 May 2010

### ***An Options Pricing Approach to Clean Development Mechanism Projects***, co-author M. Y. Keoula

- Optimization Days, Montreal, 2-4 May 2011
- Optimization Days, Montreal, 10-12 May 2010

### ***A Risk Based Project-to-Organization Matching System Using the Analytic Hierarchy Process***, co-author F. Mafakheri

- Decision Sciences Institute 40th Annual Meeting, New Orleans, USA, 14-17 November 2009

### ***A Two Stage Multiple Criteria-dynamic Programming Approach for Supplier Selection-order Allocation***, co-author F. Mafakheri

- INFORMS Annual Meeting, San Diego, USA, 11-14 October 2009

***Pricing the CBOT T-BOND Futures with empirical application***, co-authors R. Ben Abdallah and H. Ben Ameur

- 16th International Conference on Computing in Economics and Finance, London, U.K., July 15–17 2010
- 17th Annual Conference of the Multinational Finance Society, Barcelona, Spain, 27 – 30 June 2010
- 2010 Southwestern Finance Association Annual Meeting, Dallas, Texas, 2-6 March 2010
- Third Annual Risk Management Conference, Singapore, 16-18 July 2009
- Third International Conference on Asia-Pacific Financial Markets (CAFM), Seoul, Korea, 6 December 2008

***Farsightedness in a coalitional Great Fish War***, co-author M. Keoula

- 7th International ISGG Workshop, Djerba, Tunisia, 1-3 July 2009
- 2<sup>nd</sup> Workshop on Dynamic Games in Management Science, Valladolid, Spain, 29-30 June 2009
- 17th Annual Conference of the European Association of Environmental and Resource Economists, Amsterdam, Netherlands, 24-27 June 2009
- Canadian Economics Association, Toronto, 28-31 May 2009
- Second Workshop on Game Theory in Energy, Resources and Environment, Montreal, 20-21 November 2008

***Stability of International Environmental Agreements with Uncertain Environmental Damage and Learning***,

co-author L. Sbragia

- International Symposium of Dynamic Games, Banff, 20-23 June 2010
- Canadian Economics Association, Toronto, 28-31 May 2009.

***A Spectral Dynamic Programming Application for Pricing Derivatives***, co-authors J. de Frutos and S. Serghini Idrissi

- 9th conference on Operations Research, Havana, Cuba, 22-26 February 2010
- Optimization Days, Montreal, 4-6 May 2009

***Refinancement optimal et tarification des titres hypothécaires***, co-author A. Boudhina

- Optimization Days, Montreal, 4-6 May 2009

***Resolution of financial distress under Chapter 11***, co-authors A. Annabi and P. François

- International Symposium of Dynamic Games, Banff, 20-23 June 2010
- 2nd Financial Risks International Forum on "Risk Management & Financial Crisis", Paris, 19-20 March 2009
- Rimini Centre for Economic Analysis: Workshop on Dynamic Games in Economics, Rimini, 4-5 December 2008
- 2008 FMA European Conference, Prague, 4 June 2008
- Seminar Series, Brock University, 16 May 2008
- Financial Management Association International Meeting, Orlando, Florida, 17-20 October 2007
- 16th European Financial Management Association Conference, Vienna, Austria, 27-30 June 2007
- Optimization Days, Montreal, 8-10 May 2006

***International Environmental Agreements and R&D Linkage***, co-author L. Sbragia

- Second Workshop on Game Theory in Energy, Resources and Environment, Montreal, 20-21 November 2008

***Option Pricing under GARCH processes by PDE methods***, co-author J. de Frutos

- IFORS 2008, Sandton, South Africa 13-18 July 2008
- Workshop on Dynamic Games and Application, Montreal, 2-3 May 2008
- Optimization Days, Montreal, 7-9 May 2007

**Dynamic games in finance**, Tutorial talk

- Alio-INFORMS 2010, Buenos Aires, Argentina, 6-9 June 2010
- 13th International Symposium on Dynamic Games and Applications, Wroclaw, Poland, 30 June-3 July 2008
- Second International Conference on Game Theory and Management, St. Petersburg, Russia, 26-27 June 2008

**Évaluation d'options sous GARCH (1,1) et distribution Normale Inverse Gaussienne**, co-authors H. Ben Ameur and A. Radhouane

- Joint CORS/Optimization Days meeting, Québec, 12-14 May 2008

**Évaluation d'options à barrière sous le modèle GARCH**, co-authors H. Ben Ameur and S. Ben-Khelil

- Joint CORS/Optimization Days meeting, Québec, 12-14 May 2008

**Mutual Fund Competition in the Presence of Dynamic Flows**, co-authors J. Hugonnier and T. Masmoudi

- Workshop on Dynamic Games and Applications, Montreal, 2-3 May 2008

**An Analysis of the True Notional Bond System Applied to the CBOT T-Bonds Futures**, co-authors R. Ben Abdallah and H. Ben Ameur

- Mathematical and Statistical Methods for Actuarial Sciences and Finance, Venice, Italy, 27-29 March 2008
- 4<sup>th</sup> Melbourne Derivatives Research Group Conference, Melbourne, Australia, 19 March 2008
- Paris International Meeting on Finance, Paris, France, 20-21 décembre 2007
- 16th European Financial Management Association Conference, Vienne, Autriche, 27-30 June 2007
- Optimization Days, Montreal, 7-9 May 2007

**Dynamic Models for International Environmental Agreements**, co-authors L. Sbragia and G. Zaccour

- 13th Coalition Theory Network Workshop, Venice, 24-25 January 2008
- Workshop on Game Theory in Energy, Resources and Environment, Montreal, 25-26 octobre 2007
- Sixth International ISDG Workshop, Rabat, Morocco, 5-8 September 2007
- 13<sup>th</sup> International Conference on Computing in Economics and Finance, Montreal, 14-16 June 2007
- 7th Meeting on Game Theory and Practice Dedicated to energy Environment and Natural Resources, Montreal, 28-30 May 2007
- 9th Workshop on Optimal Control, Dynamic Games and Non-linear Dynamics, Montreal, 7-9 May 2007

**Gas Markets, Access Regimes and Investments Incentives**, co-author M. Kharbach

- 7th Meeting on Game Theory and Practice Dedicated to energy Environment and Natural Resources, Montreal, 28-30 May 2007

**Size Timing using Machine-learning Methods**, co-author T. Mouakhar

- Optimization Days, Montreal, 7-9 May 2007

**Gas Transportation and Storage under a Price Cap Regulation**, co-author M. Kharbach

- Workshop on Energy & Environmental Modeling, Montreal, 1er février 2007
- 12<sup>th</sup> International Symposium on Dynamic Games, Sophia-Antipolis, France, 3-6 July 2006
- Optimization Days, Montreal, 8-10 May 2006

**A model of Strategic Competition between Mutual Funds**, co-authors J. Hugonnier and T. Masmoudi

- Small Open Economies in a Globalized World, Rimini, 29 August-2 September 2006

**Pricing the CBOT T-BOND Futures**, co-authors R. Ben Abdallah and H. Ben Ameur

- 12<sup>th</sup> International Conference on Computing in Economics and Finance, Limassol, Cyprus, 22-24 June 2006
- MEC-VNS conference, University La Laguna, Tenerife, Spain, 23-25 November 2005

***Délégation de la richesse : choix d'investissement, de consommation et des frais de gestion dans un cadre en temps continu***, co-authors J. Hugonnier and T. Masmoudi

- 1<sup>re</sup> conférence Euro-Africaine en finance et économie, La Marsa, Tunisia, 8-9 June 2006

***Tarification des futures sur bons du trésor***

- Séminaires Viabilité, Jeux Contrôle, CREA et LASTRE, Paris, 4 avril 2006

***Feedback Stackelberg Equilibria in a Dynamic Game of Advertising Competition: A Numerical Analysis***, co-authors R. Jarrar and G. Zaccour

- Fifth International Workshop on Dynamic Games and Applications, Segovia, Spain, 21-24 September 2005

***Dynamic R&D with Strategic Behavior***, co-authors D. Vencatachellum and G. Zaccour (invited)

- Fifth International Workshop on Dynamic Games and Applications, Segovia, Spain, 21-24 September 2005

## **OTHER CONTRIBUTIONS**

### **Editorial Boards**

- 2010 - Associate Editor, Dynamic Games and Applications  
2007- Associate Editor, International Transactions in Operational Research  
1998- Associate Editor, Automatica  
1998- Associate Editor, International Games Theory Review  
1997-1998 Editorial Committee, Annals of the International Society of Dynamic Games 1998

### **Conference and Workshop Organization (last 6 years)**

- Game Theory and Practice 8, Riverside, California, 11-12 July 2011
- Decision Science and sustainable development, Montreal 27-28 September 2010
- 14th ISDG Symposium, Banff, June 2009
- Mathematical Finance Days, Montreal 13-14 May 2010
- Workshop on Game Theory in Energy, Resources and Environment, Montreal December 2009
- Optimization Days, Montreal May 2009
- Finance Cluster, Optimization Days, Québec, 12-14 May 2008
- Workshop on Dynamic Games and Application, Montréal , 2-3 May 2008
- Workshop on Game Theory in Energy, Resources and Environment, Montreal, 25-26 October 2007
- 13<sup>th</sup> International Conference on Computing in Economics and Finance, Society for Computational Economics, Montreal, 14-17 June 2007
- 7<sup>th</sup> Meeting on Game Theory and Practice Dedicated to Energy, environment and Natural Resources, Montreal, 28-30 May 2007
- Ninth workshop on Optimal Control, Dynamic Games and Non Linear Dynamics, Montreal, 7-9 May 2007
- Spring School Viability : Models, Algorithms and Applications in Finance and Environmental Economics, Montreal, 16-20 April 2007
- Third International Conference on Credit and Operations Risks, Montreal, 12-13 April 2007
- Workshop on Energy and Environmental Modelling, Montreal, 1 February 2007
- Optimization Days, Montreal, 8-10 May 2006

## **Management of external organizations**

- 2009- Scientific director, Institut de Finance Mathématique de Montréal
- 2008- Vice-president and treasurer, International Society of Dynamic Games
- 2006- Treasurer, International Society of Dynamic Games
- 2007- Members' representative, GERAD management board.
- 2006-2009 Member of the Research Committee, IFM<sup>2</sup>
- 2005-2009 Member of the Evaluation Committee, Excellence awards for foreign students, Ministère de l'Éducation du Québec
- 2004-2005 Member of the Evaluation Committee, Joint Infrastructure Interdependencies Research Program (JIIRP), Natural Sciences and Engineering Research Council of Canada NSERC
- 2003-2005 Director management board, RROM (Réseau en recherche opérationnelle de Montreal)
- 2001-2003 Representative of HEC at the RROM
- 1999-2003 Member of the Council of the Faculté des études supérieures de l'Université de Montreal
- 1994-1997 Member of the Program Committee, Subventions nouveau chercheur, Fonds FCAR
- 1994-1997 Responsible of the Research group on methods in finance (GERAD)
- 1989-1991 Vice president, Administrative Sciences Association of Canada (ASAC)
- 1986-1989 Editor of the ASAC Bulletin

## ***PEDAGOGICAL ACTIVITIES***

### **TEACHING**

#### **Undergraduate**

- Mathematics for graduate studies in management
- Operations Research
- Financial Mathematics
- Operations Research and Decision Support
- Quantitative Methods in Finance
- Statistical Methods
- Probabilities
- Production and Operations Management
- Network and Optimization Models in Transportation (ESSEC Douala)
- Initiation to STORM (ESSEC Douala)
- Inventory Management (ESSEC Douala)
- Linear and Integer Programming (ESSEC Douala)
- Project Management with Activity Networks (ESSEC Douala)
- Computer Science Project (Informatique et recherche opérationnelle, Université de Montreal)

## **Specialized Graduate Diplomas**

Operations Research: Management Tool in the Oil Industry  
Exploration and Production: Risk Analysis and Decision Making  
Operations Management in the Oil Industry  
Introduction to Operations Research  
Application of Operations Research in Energy (HEC, Wuhan, Chengdu Chine)  
Risk Analysis (HEC, Wuhan, Chengdu)  
Fundamentals of Business Mathematics  
Models for Decision Support

## **MBA**

Business Analytics  
Risk Analysis  
Applications of Operations Research  
Mathematics for Decision  
Preparation in Mathematics  
Probabilities  
Statistics  
Modelling and Decision Support (specialized course)  
Introduction to Operations Research  
Operations Research (ITAM Mexico)  
Statistics and Forecasting (ITAM Mexico)

## **M.Sc.**

Workshop in Operations Research  
Financial Engineering

## **Ph.D.**

Dynamic Optimization (Joint Ph.D. program HEC/Concordia/McGill/UQAM)  
Introduction to financial derivatives mathematics (University of Valladolid)

## **TRAINING SEMINARS**

Power Plant Optimization (Overseas Power Plant Management Training Program)

- China Yangtze Power Corp., Montreal, November 2010

Risk Analysis (Energy Management Development Program)

- Jilin Electric Power Corp., Changchun, July 2010
- China Guodian Group Co. , Ningbo, May 2008
- Sechuan Electric Power Corporation, June 2007, June 2011
- China Yangtze Power Co and China Three Gorges Project Corporation, 9-11 January 2006.

Applications of Operations Research in the Energy Sector (Energy Management Development Program)

- Entreprise Tunisienne d'activités pétrolières (ETAP), Tunis, April 2004.

Business Analytics (EMDP)

- HEC Montréal, novembre 2008

#### Risk Analysis in the Energy Sector (Energy Management Development Program)

- Naftogaz, Annaba, Algeria, February 2008, Oran, January 2010
- Entreprise Tunisienne d'activités pétrolières (ETAP), Tunis, February 2004, January 2011

#### Risk Analysis in exploration and production

- SEREPT, Tunis, February 2004
- Entreprise Tunisienne d'activités pétrolières (ETAP), Tunis, 27-31May 1996
- Entreprise Tunisienne d'activités pétrolières, Sidi Bou Saïd, 7-11 September 1992

#### Risk Analysis (Programa Ejecutivo de Capacitación para el Sector Energia, in collaboration with ITAM

- Mexico, February 2001, March 2002, January 2003, January 2004, February 2005, February 2006, September 2006, August 2008
- Ciudad del Carmen, November 2006
- Villahermosa, February 2003, March 2004, February 2005

#### Modelling and evaluating oil agreements

- SNC-Lavalin, October 1999

#### Risk Analysis, Exploration, Production and Pipeline Transportation

- China Petroleum Planning and Engineering Institute, Beijing, China, 3-6 July 1995 (with Alain Lapointe and Georges Zaccour)
- China Alberta Petroleum Centre, Beijing, Chine, 26-29 June 1995 (with Alain Lapointe and Georges Zaccour)

#### Financial Evaluation of oil projects

- Pemex Exploration y Produccion, Poza Rica, Ver, Mexico, 12-16 December 1994 (with Alain Lapointe)

#### Negotiation and oil legislation

- Office Militaire National pour les Industries Stratégiques, Antananarivo, Madagascar, 12-16 September 1994 (with Alain Lapointe)

#### Inventory management

- Union Arabe du Fer et de l'Acier, November 1993

#### Introduction to the use of computers in management

- ESSEC, Douala, 15-19 March 1993

#### The OPLAR system

- Gestion des entreprises pétrolières, HEC, February 1992, February 1991

#### Operations research and computer science: decision support tools in the refining and petrochemical industries

- Gestion des entreprises pétrolières, HEC, 17-19 June 1991

#### Risk analysis in exploration and production

- Seminario petroleo y energia estrategia y optimizacion, Universidad de Los Andes, 22-25 April 1991

#### Global energy models

- MARKAL-Tunisia, GERAD, 21-22 January 1991

## **STUDENT SUPERVISIONS**

### **Training of trainers**

1. Wang Yixia (HUST, Wuhan, China), Risk Analysis, January-March 2007
2. Lu Yaobin (HUST, Wuhan, China), Operations Research, May-June 2000

## Post-doctoral trainees

1. Fushan Nasiri, *Multicriteria optimization models in environment*, October 2007 – April 2009. Joint supervision with Georges Zaccour.
2. Lucia Sbragia, *Dynamic game applications in environment*. September 2006 - September 2008. Joint supervision with G. Zaccour.
3. Denis Claude, *Sustainable agreements and strategic alliances: applications in environment*. September 2004 - September 2005 and November 2006 - November 2008. Joint supervision with Hassan Bencheikroun and Georges Zaccour.

## Ph.D.

1. Hossein Mizrapour, Ph.D. Administration. *Strategic Behaviour in the Energy Sector*. September 2010.
2. Fatemeh Behzadnejad, Ph.D. Economics. *Renewable resources*. September 2009. Joint supervision with Hassan Bencheikroun.
3. Mbaye Ndoye, Ph.D. Administration. *Derivative pricing*. September 2010.
4. Ehnsanallah Naseri, Ph.D. Administration. *Supply chain*. September 2010.
5. Samar Garrab, Ph.D. Administration. *Viability and sustainable development*. September 2009.
6. Saad Serghini Idrissi, Ph.D. Administration. *Spectral Approximation Methods*. September 2009.
7. Florent Kpodjedo, Ph.D. Administration. *Portfolio Optimization for the Insurance Industry*. January 2009. Joint supervision with Bruno Rémillard.
8. Ali Boudhina, Ph.D. Administration. *Transaction Costs*. January 2009.
9. Chedly Baraket, Ph.D. Administration. *Fourier Transforms and Option Pricing*. September 2006.
10. Mohammed Kharbach, Ph.D., Administration, HEC, *Open Access Models in Energy*. September 2003.
11. Michel Yevenunye Keoula, Ph.D. Administration, HEC. *Stability in Renewable Resource Management Models*. September 2006 – June 2011
12. Fereshteh Mafakheri, Ph.d. Administration. *Project Management and Risk Analysis*. September 2008 – November 2010.
13. Amira Annabi, Ph.D., Administration, HEC, *Strategic models and corporate debt*. September 2002 – October 2009. Joint supervision with Pascal François.
14. Ramzi Ben Abdallah, Ph.D., Administration, HEC, *Essays on the Valuation of Derivatives on Long Maturity Treasury Bonds*. September 2003 – September 2008. Joint supervision with Hatem Ben Ameer. **Best Thesis Award (2008), HEC Montréal**
15. Salmata Ouedraogo, Ph.D., Administration, HEC, *Essays in empirical economics: Health – Education - Gender*. January 2003 – March 2008. Joint supervision with Désiré Vencatachellum.
16. Tammam Mouakhar, Ph.D., Administration, HEC, *Essays on Strategic and Tactical Asset Allocation*. January 2002 - March 2007.
17. Tarek Masmoudi, Ph.D., Administration, HEC, *Portfolio Management Delegation: Investment Choice and Management Fees in a Continuous Time Framework*. September 2001 - May 2006.
18. Karim Drira, Ph.D., Administration, HEC, *Three Essays on the Valuation of Embedded Derivatives in Financial Contracts*. January 2000 - March 2006.
19. Karima Fredj, Ph.D., Administration, HEC, *Application of Game Theory to Global environmental Problems*. January 2000 - October 2004. Joint supervision with G. Zaccour. **Best Ph.D. thesis award (2005), HEC Montreal**
20. Abdalla Turki, Ph.D., Administration, HEC, *The Efficiency of Bertrand and Cournot Equilibria*. September 2000 - September 2004.

21. Mehdi Zahaf, Ph.D., Administration, HEC, *Joint Implementation of Environmental Projects: A Game Theory Approach*. September 1998 - January 2004. Joint supervision with G. Zaccour
22. Hatem Ben Ameer, Ph.D., Administration, HEC, *Simulation and Numerical Procedures for Option Pricing*. September 1995 - March 2002. Joint supervision with P. L'Écuyer. **Best Ph.D. thesis award, HEC Montreal (2002)**.
23. Abdelghani Hammadia, Ph.D., Applied Mathematics, Polytechnique. *Contribution to the optimization, in real time and short term, of the hydroelectric resources of a river*. September 1997 - January 2001.
24. Pierre-Olivier Pineau, Ph.D., Administration, HEC, *Electricity Market Reforms: Institutional Developments, Investment Dynamics and Game Modeling*. September 1995 - October 2000. Joint supervision with G. Zaccour. **Best Ph.D. thesis award, HEC Montreal (2000). Award of excellence, IREC (2000)**.

### Masters (with thesis)

1. Christopher McLaren, M.Sc. Financial Engineering, HEC. *Risk measures*. September 2010.
2. Tiguéné Nabassaga, Master Economic modelling and econometrics, École Polytechnique de Tunisie. *Pricing bermudean quanto options*. September 2010.
3. Rami Jrad M.Sc. financial engineering, HEC. *Pricing derivatives under GARCH using a combination of spectral and finite elements methods*. September 2008.
4. Mohamed Moufid Eytayo, M.Sc. financial engineering, HEC. *Interbank payment systems*. September 2007.
5. Mourad El-Hila, M.Sc. financial engineering, HEC. *Empirical investigation of option prices under GARCH*. September 2008 – september 2010.
6. Amine Radhouane, M.Sc. financial engineering, HEC. *Non Gaussian GARCH Models* . January 2009 – July 2011.
7. Fares Ben Mahmoud, M.Sc. financial engineering, HEC. *Implicit options pricing using multifactor diffusion models*. September 2008 – December 2010.
8. Judith Toupin, M.Sc. financial engineering, HEC. *Pricing and hedging of segregated funds*. September 2007 – October 2009.
9. Saad Serghini Idrissi, M.Sc. financial engineering, HEC. *Option pricing under GARCH*, September 2007 – September 2009.
10. Ali Boudhina, M.Sc. financial engineering, HEC. *Mortgage backed securities*. January 2008 – September 2009.
11. Sébastien Forté, M.Sc. Financial Engineering, HEC. *Arbitrage Strategy on the Term Structure of Swap Rates*. September 2006 – September 2008. Joint supervision with Tarek Masmoudi (CDPQ).
12. Yahaya Rhissa, M.Sc., Financial Engineering, HEC, *Families of regressors in the LS procedure*. September 2005 – September 2008. Joint supervision with H. Ben Ameer.
13. Jean-Guy Demers, Ph.D., Financial Engineering, HEC, *Prevision models for energy prices*. April 2005 - October 2007.
14. Guiseppe Iafigliola, M.Sc., Financial Engineering, HEC, *Implémentation of Black's model for normal interest rate distribution, Mortgage Backed Securities: an analysis*. January 2001 - January 2007. Joint supervision with H. Ben Ameer.
15. Valérie Lemieux, M.Sc., Finance, HEC, *Significant determinants of hedge funds performance"*. September 2003 - May 2006. Joint supervision with É. Jacquier.
16. Jonathan Trépanier, M.Sc., Operations Research, HEC, *Analysis of cooperation in R&D projects with asymmetries*. January 2002 - January 2005.
17. Sarah Bounad, M.Sc., Financial Engineering, HEC, *Dynamic capital structure model*. January 2002 - May 2005. Joint supervision with Pascal François.

18. Mario Spino, M.Sc., Financial Engineering, HEC, *Pricing swing options on electricity using dynamic programming*. September 2000 - December 2003.
19. Ramzi Ben Abdallah, M.Sc., Financial Engineering, HEC, *Timing strategy for the "cheapest to deliver" bond*. September 2001 - September 2003. Joint supervision with H. Ben Ameer.
20. Maurice Bijo, M.Sc., Business Intelligence, HEC, *Demographic and macroeconomic determinants of charitable donations levels of Canadian*. January 2001 - May 2003.
21. Jean-François Giroux, M.Sc., Financial Engineering, HEC, *Pricing "lookback" American options with dynamic programming*. September 1999 - January 2003.
22. Iryna Golovan, M.Sc., Operations Research, HEC, *The dynamics of revenue inequality and direct taxation*. September 1999 - January 2003. Joint supervision with D. Vencatachellum (2002).
23. Mohamed Mokhtari, M.Sc., Financial Engineering, HEC, *Pricing American options on the natural gas market using quasi-analytic methods*. September 1999 - November 2002. Joint supervision with P. François (2002).
24. Lotfi Karoui, M.Sc., Financial Engineering, HEC, *Pricing implicit options in bonds using dynamic programming and finite elements methods*. September 2000 - September 2003. Joint supervision with H. Ben Ameer.
25. Florent Kopdejpo, M.Sc., Financial Engineering, HEC, *Comparison of various estimation methods by gaussian mixtures for financial series*. September 1999 - September 2002.
26. Giorgio Pavesio, M.Sc., Financial Engineering, HEC, *Evolution of interest rate spreads for various credit ratings*. January 2000 - May 2002.
27. Dominic Binette, M.Sc., Financial Engineering, HEC, *Is uncertainty in real exchange rates generating a strategic advantage for a multinational firm in a duopoly?* January 1998 - December 2001.
28. Jean-Jacques Chouinard, M.Sc., Financial Engineering, HEC, *Management of risk of pension plans*. September 1999 - November 2001.
29. Karine Béguin, M.Sc., Financial Engineering, HEC, *Average time between margin calls for term contracts*. September 1999 - August 2001. Joint supervision with H. Ben Ameer.
30. Jacqueline Mukamurenzi, M.Sc., Financial Engineering, HEC, *Pricing a convertible, callable and putable bond (the LYON case)*. January 1997 - April 2000.
31. Éric Springuel, M.Sc., Financial Engineering, HEC, *A dynamic stochastic minimax algorithm for the solution of a portfolio optimization problem*. January 1998 - January 2000. **Best M.Sc. Thesis Award, 2000.**
32. Mounira Boussetta, M.Sc., Financial Engineering, HEC, *Investment strategies: distresses societies stocks*. January 1998 - October 1999. Joint supervision with Minh Chau To.
33. Quoc-Xuan, Trinh, M.Sc., Financial Engineering, HEC, *Evaluating corporate bonds: analytical solution*. September 1996 - September 1999. Joint supervision with Minh Chau To.
34. Gabriel Veilleux, M.Sc., Finance, HEC, *Risk management model for interest in inflation rates in the management of pension funds*. September 1997 - August 1999. Joint supervision with P. Laroche.
35. Kafui Aithnard, M.Sc., Financial Engineering, HEC, *Optimizing the asset-liability spread for a pension fund*. January 1996 - January 1999. Joint supervision with P. Laroche.
36. Anta Niasse, M.Sc., Operations Research, HEC, *Using fuzzy optimization to analyse investment strategies*. September 1995 - September 1998. Joint supervision with P. Laroche.
37. Saloua Ouassil, Engineering, École nationale supérieure d'informatique et d'analyse des systèmes, Morocco. *Optimal Unit Loading in a hydroplant*. January 1998 - July 1998.
38. Anthony Vallée, M.Sc., Financial Engineering, HEC, *Impact of derivatives on the efficient frontier*. January 1997 - June 1998. Joint supervision with P. Laroche.
39. Claude Khalil, M.Sc., Financial Engineering, HEC, *Portfolio rebalancing*. September 1995 - March 1998. Joint supervision with P. Laroche.
40. Nagi Haddad, Operations Research, HEC, *Dynamic optimization in publicity with competition*. September 1995 - February 1998. Joint supervision with G. Zaccour.

41. Abdelghani Hammadia, M.Sc., Applied Mathematics, École Polytechnique. *Chargement optimal des groupes* January 1997 - September 1997.
42. Arnold Ngouana, M.Sc., Operations Research, HEC, *Portfolio optimization with asymmetrical risk criteria*. September 1994 - July 1997.
43. Christian Rhéaume, M.Sc., Operations Research, HEC, *Sensitivity of the binomial implicit model of Barle and Cakici: volatility structure and non-constant dividends*. September 1994 - July 1997. Joint supervision with P. Laroche.
44. Anne Mercier, M.Sc., Operations Research, HEC, *Modelling international oil agreements*. January 1995 - May 1997.
45. Sophie Leblanc, M.Sc., Operations Research, HEC, *Optimal portfolio with managers* . January 1995 - November 1996.
46. Abdelghani Hammadia, Engineering, École nationale supérieure d'informatique et d'analyse des systèmes, Maroc. *Optimal unit loading in hydroelectric plants* . September 1994 - July 1996.

### **Masters (with supervised projects)**

1. Laure-Cristelle Savadogo, M.Sc. Financial Engineering, HEC. *Financial Analyst*. January 2009 – September 2010.
2. Si-Yang Wu, M.Sc. Financial Engineering, HEC. *Financial Analyst*. January 2009 –May 2010.

### **Graduate specialized diploma in Management of Oil Industries (graduates)**

1. Bin, Su, *Reservoir and River Optimization in Sechuan*, March 2004.
2. Siwu, Chang, *Dynamic Optimized Operation Mode of Hydropower Station*, March 2004.
3. Hadiji, Lamjed, *Financial evaluation of an oil field in the development phase*, May 1995.
4. Khediri, Mohamed, *A model for the STIR refinery*, May 1995.
5. Harouni, Mongi, *Optimizing the use of pump equipment at the El Borma field*, May 1995.
6. Becheikh, Khaled, *Energy models*, June 1990.
7. Nkoto-Angoula, Joël, *Optimization of transportation and distribution of petroleum products in Cameroon*, June 1990.
8. Othmani, Mohamed, *Optimization of refinery processes by linear programming*, June 1990.
9. Ratomaharo, Malalanirina, *Models for the evaluation of reserves*, June 1990.
10. Harakandi, Onesphore, *Forecasting demand, transportation and distribution of oil products in Burundi*, June 1989.
11. Khalfallah, Ezzedine, *Optimizing transportation of oil products in Tunisia*, June 1989.
12. Salem, El-Hassen, *Risk analysis, gas field production project*, June 1989.
13. Oualaalou, Said, *Optimization of refinery processes by linear programming*, June 1989.
14. Kaddour, Khaled, *Increasing the recuperation at El-Borma*, July 1988.
15. Toure, Soriba, *Optimizing transportation of petroleum products in the republic of Guinea*, July 1988.

### **Undergraduate trainees**

1. Axel Siliadin, École Polytechnique de Tunisie, *A dynamic Programming approach using Tchebychev interpolation for pricing bonds with embedded options under the two factor Vasicek model*. February to June 2011.

2. Tiguéné Nabassaga, École Polytechnique de Tunisie, *Quasi-Monte Carlo Methods*. February to June 2010.
3. Neji Mouklla, École Polytechnique de Tunisie, *Pricing implicit options with spectral approximation methods*. February to June 2010.
4. Allia Selami, École Polytechnique de Tunisie, *Pricing Derivatives Using Prospective Dynamic Programming*, February to June 2009.
5. Salah Ben Khalil, École Polytechnique de Tunisie. *Pricing Barrier Options under GARCH*. February – June 2008. Joint supervision with Hatem Ben Ameer
6. Amina Graja, École Polytechnique de Tunisie. *Stability of environmental agreements : a MERGE approach*. February – June 2008. Joint supervision with Olivier Banh and Georges Zaccour
7. Amine Radhouane, École Polytechnique de Tunisie. *GARCH Models with non-gaussian innovations*. February – June 2008. Joint supervision with Hatem Ben Ameer
8. Ali Boudhina, École Polytechnique de Tunisie. *Mortgage refinancing risk*. February – June 2007.
9. Amine Bouassida, École Polytechnique de Tunisie. *Forecast of term structure for treasury bonds*. February – June 2007.
10. François-David Lessard, DIRO, Université de Montreal. *Development of a dynamic programming software*. January – May 1995.

## TEACHING DOCUMENTS

1. Breton, M., *Introduction to Operations Research: Linear Programming*, January 2001, 29 pages.
2. Breton, M. and A. Lapointe, *Modélisation et évaluation de contrats pétroliers*, October 1999, 28 pages.
3. Breton, M., *Mathématiques en gestion, notions de base*, code n° 640, August 1997, 50 pages.
4. Breton, M., *outils d'aide à la décision dans le secteur de l'énergie : analyse économique et optimisation, 1996, 28 pages*.
5. Breton, M., *La programmation linéaire*, NRJ-DP-96-01, March 1996, 98 pages.
6. Breton, M. and J.-P. Bélisle, *Régression et prévision*, code n° 629, September 1995, 96 pages.
7. Breton, M., *Programmation linéaire et extensions*, code n° 630, November 1995, 126 pages.
8. Breton, M. and G. Zaccour, *Initiation au logiciel STORM*, GEP-DP-94-03, November 1994, 64 pages.
9. Breton, M. and G. Zaccour, *La gestion des stocks*, GEP-DP 94-02, March 1994, 39 pages.
10. Breton, M., *Outils de gestion dans l'industrie pétrolière: analyse économique et optimisation*, GEP-DP 93-02, October 1993, 19 pages.
11. Breton, M., *La programmation linéaire en nombres entiers*, HEC-CETAI/CUD-ESSEC CAM 92-09, November 1992, 22 pages.
12. Breton, M., *Initiation à STORM*, HEC-CETAI/CUD-ESSEC CAM 92-08, November 1992, 33 pages.
13. Breton, M. and Dian Raynaud, *Forages d'exploration*, GEP-DP 92-06, June 1992, 10 pages.
14. Breton, M., *L'évaluation des réserves*, GEP-DP 92-04, May 1992, 5 pages.
15. Breton, M., *Optimisation par programmation linéaire des activités d'une raffinerie*, GEP-DP 92-03, May 1992, 7 pages.
16. Breton, M., *La gestion des projets par réseaux d'activités*, GEP-DP-91-04, June 1991, 49 pages.
17. Bilongo, R., M. Breton, T. Fansi and G. Zaccour, *La gestion des stocks*, HEC-CETAI/CUD-ESSEC CAM 90-12, July 1990, 58 pages.
18. Breton, M. and R. Loulou, *Exploration et production: analyse de risque et prise de décision*, GEP-DP 90-01, January 1990, 131 pages.
19. Breton, M., *Recherche opérationnelle : outil de gestion dans l'industrie pétrolière. La programmation linéaire*, GEP-DP 89-13, November 1989, 157 pages.

20. Breton, M., *Mathématiques financières (autodidacte)*, GEP-DP 89-10, August 1989, 73 pages.
21. Breton, M., *Gestion de la production dans le secteur des produits raffinés - Utilisation du système LANDP*, GEP-DP-89-09, August 1989, 20 pages.
22. Breton, M. and G. Zaccour, *Distribution physique des hydrocarbures: Gestion des stocks, techniques de prévision et modèles de transport*, GEP-DP-89-05, May 1989, 134 pages.
23. Breton, M., *Problèmes de programmation linéaire*, lecture notes, 1988, 63 pages.
24. Breton, M., *Éléments de recherche opérationnelle*, lecture notes, 1986, 93 pages.
25. Breton, M., *Mathématiques de la décision*, lecture notes, 1986, 81 pages.
26. Breton, M., *Utilisation du système LANDP*, lecture notes, 1984, 16 pages.
27. Breton, M. and D. Rivest, *Problèmes de programmation linéaire*, lecture notes, 1983, 63 pages.
28. Breton, M. and A. Haurie, *Optimisation*, lecture notes, 1980, 50 pages.
29. Breton, M. and J. Kelada, *Contrôle de la qualité*, lecture notes, 1979, 20 pages.

## ORIGINAL CASE STUDIES

1. Breton, M., C. Berger and A. Paskievici, *Optimisation du raffinage à la SASTIR*, GEP-DP 91-05, November 1991, 17 pages. (Use of matrix generators in linear programming for refinery optimization).
2. Breton, M. and D. Raynaud, *Astral Oil au San Theodoros*, GEP-DP 89-18, March 1991, 13 pages. (Use of decision trees in exploration for oil).
3. Breton, M. and D. Raynaud, *Arkhoum Sarpata (1), (2) and (3)*, GEP-DP-90-10, GEP-DP-90-12 and GEP-DP-90-14, April 1990, 21 pages (1), 7 pages (2) and 6 pages (3). (Simulation; negotiation game for oil agreement in an uncertain context).
4. Breton, M. and D. Raynaud, *Zapada Khotor*, GEP-DP-90-13, April 1990, 15 pages. (Optimization under risk).
5. Breton, M. and D. Raynaud, *Baramongo*, GEP-DP 90-11, April 1990, 17 pages. (Game theory and negotiation).
6. Breton, M. and D. Raynaud, *Wapito*, GEP-DP 90-04, February 1990, 32 pages. (Use of deterministic models and decision trees for strategic decision making in exploration, delineation and development of an oil field).
7. Berger, C. and M. Breton, *Une raffinerie simple*, GEP-DP 90-03, January 1990, 48 pages. (Linear programming for refinery optimization).
8. Breton, M. and D. Raynaud, *La raffinerie de Noricor*, GEP-DP 89-15, December 1989, 17 pages. (Linear programming and post-optimal analysis).
9. Breton, M. and D. Raynaud, *Évaluation des réserves de Rambo-Navaja*, GEP-DP-89-17, December 1989, 12 pages. (Use of Monte-Carlo simulation for the evaluation of reserves).
10. Breton, M. and D. Raynaud, *Planning des opérations de développement sur le site d'un champ pétrolifère au San Théodoros*, GEP-DP 89-16, December 1989, 13 pages. (Project management using activity networks).
11. Breton, M. and G. Zaccour, *Distribution physique des produits pétroliers en république de Guinée*, GEP-DP-89-08, July 1989, 9 pages. (Transportation and tours).
12. Breton, M., *Meublo Ltée*, September 1987, 17 pages. (Regression, linear programming and decision trees).
13. Breton, M., *La compagnie FGH*, September 1986, 5 pages. (Linear programming).
14. Breton, M. and A. Haurie, *Acierrec*, September 1983, 14 pages. (Quadratic programming).