

RESUME
PIERRE PATIE

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1 Personal Details

Private Address:
12 Sanctuary Dr,
Ithaca, NY 14850

Professional Address:
Cornell University
School of Operations Research and Information Engineering
Frank H.T. Rhodes Hall
Ithaca, NY 14853

Phone: (607) 279 29 71 (private) (607) 255 91 30 (professional)
E-Mail: pp396@cornell.edu
URL: <http://courses2.cit.cornell.edu/pp396>

Born in Pau (France)
Citizenship: French
Family Status: Married, 2 children Isia (2006) and Orion (2008)

2 Professional Experience and Education

PROFESSIONAL EXPERIENCE

- 2013- Associate Professor (Tenured since Aug. 2017) - Canaan Family Faculty Fellow
School of Operations Research and Information Engineering (ORIE),
Cornell University.
- 2009-12 Chargé de Cours - Associate Professor
Actuarial Sciences Unit and Probability Unit,
Department of Mathematics, Université Libre de Bruxelles (ULB).
- 2008-09 Privat-dozent (Assistant Professor)
Institute of Mathematical Statistics and Actuarial Sciences (IMSV),
University of Bern (UBe).
- 2006-08 Oberassistent, IMSV, UBe.
- 2006 Visiting Researcher, 6 months, Department of Mathematics,
Swiss Federal Institute of Technology Zurich (ETH Zurich).
- 2005-06 FINRISK Research Fellow, Projet Omega, INRIA Sophia-Antipolis.
- 2005 PostDoc researcher, 6 months, RiskLab, Department of Mathematics, ETHZ.
- 2001-04 Researcher, RiskLab, Department of Mathematics, ETHZ.
- 2000-01 Coopérant du Service National Scientifique Français, RiskLab, Department of
Mathematics, ETHZ.
- 1999-2000 Quantitative Analyst, Monis Software Ltd, London.

EDUCATION

- 2008 Habilitation Thesis, Faculty of the Philosophical Natural Sciences, University of Bern,
Title: *Explicit contributions to the study of self-similar Markov processes*,
Talk: First passage time problems: From biology to economics.
Teaching field: Probability Theory.
Responsible: Prof. I. Molchanov.
- 2004 Docteur ès sciences, Departement of Mathematics, ETHZ,
Title: *On some first passage time problems motivated by financial applications*,
Supervisor : Prof. F. Delbaen.
- 1999 Mastère spécialisé en ingénierie mathématique, Ecole Polytechnique, France, and
Swiss Federal Institute of Technology (EPF), Lausanne.
Thesis: *Extreme value theory in finance*, Supervisor : Prof. N. El Karoui.

3 Research Activities

RESEARCH INTERESTS

- Spectral theory of non-self-adjoint Markov semigroups
- Intertwining relationships
- Convergence to equilibrium for ergodic Markov processes
- Fluctuation and potential theory of discrete and continuous-time Markov processes
- Subdiffusive processes
- The moment problem
- Mathematical Finance and Insurance mathematics

3.1 Research Papers

PUBLISHED PAPERS

1. Patie P. and Vaidyanathan A.(2019), A spectral theoretical approach for hypocoercivity applied to some degenerate hypoelliptic, and non-local operators, *Kinet. Relat. Mod.*, to appear 22p.
2. Miclo L. and Patie P.(2019), On intertwining relations between Ehrenfest, Yule and Ornstein-Uhlenbeck processes, *Séminaires de Probabilités*, to appear, 21p.
3. Patie P. and Savov M. (2019), Spectral expansions of non-self-adjoint generalized Laguerre semigroups, 179p., *Memoirs Amer. Math. Soc.*, to appear.
4. Patie P. and A. Vaidyanathan (2019), The log-Lévy moment problem via Berg-Urbanik semigroups, 27p., *Studia Mathematica*, to appear.
5. Patie P., Savov M. and Zhao Y. (2019), Intertwining, excursion theory and Krein theory of strings for non-self-adjoint Markov semigroups, *Ann. Proba.*, Vol. 47, No. 5, 3231-3277.
6. Miclo L. and Patie P. (2019), On a gateway between continuous and discrete Bessel and Laguerre processes, *Annales Henri Lebesgue*, 2, 59-98.
7. Loeffen R.L., Patie P. and Savov M. (2019), Extinction time of non-Markovian self-similar processes, persistence, annihilation of jumps and the Fréchet distribution, 20p., *Journal of Statistical Physics*, 175(5), 1022-1041.
8. Choi M.C.H. and Patie P. (2019), Skip-free Markov chains, *Trans. Amer. Math. Soc.*, 371(10), 7301-7342.
9. Avram F., Patie P. and Wang J. (2019), Purely excessive functions and hitting times of continuous-time branching processes, *Methodol. Comput. Appl. Probab.*, 21:391-399.
10. Chazal M., Loeffen R. and Patie P. (2018), Option pricing in one dimensional affine term structure model via spectral representation, *SIAM J. Finan. Math.* 9-2 , pp. 634-664.
11. Patie P. and Savov, M. (2018), Bernstein-gamma functions and exponential functional of Lévy processes, *Electron. J. Probab.*, 23(75), 101 p.
12. Chazal M., Loeffen R. and Patie P. (2018), Smoothness of continuous state branching with immigration semigroups, *J. Math. Anal. Appl.* 459(2):619-660.
13. Patie P. and Zhao Y. (2017), Spectral decomposition of fractional operators and a reflected stable semigroup, *J. Diff. Equation* 262(3), 1690-1719.

14. Patie, P. and Savov, M. (2016), Cauchy problem of the non-self-adjoint Gauss-Laguerre semi-groups and uniform bounds of generalized Laguerre polynomials, *J. Spectr. Theory* 7:797-846.
15. Chazal M., Kyprianou A.E. and Patie P. (2016), On some new transformations of Laplace exponents of spectrally negative Lévy processes, *Adv. Appl. Prob.*
16. Choi M.C.H. and Patie P. (2016), Sufficient conditions for continuous time finite skip-free Markov chains to have real eigenvalues, *Math. and Comp. Appr. Adv. Modern Scienc. and Engin.*, 529–536.
17. Patie P. and Zhao Y. (2016), Convergence analysis of spectral expansion of stable related semi-groups, *Math. and Comp. Appr. Adv. Modern Scienc. and Engin.*, 787–797.
18. Alili L. and Patie P. (2014), Boundary crossing identities for Brownian motion and some non-linear ODE's, *Proc. Amer. Math. Soc.* 142, 3811-3824.
19. Patie P. and Savov M. (2013), Exponential functional of Lévy processes: generalized Weierstrass products and Wiener-Hopf factorization, *C. R. Math. Acad. Sci. Paris*, 351(9-10), 393-396.
20. Patie P. (2013), A Geman-Yor formula for the pricing of Asian options in one-sided Lévy processes, *J. of Appl. Prob.* 50(2), 359-373.
21. Patie P. (2012), Law of the absorption time of positive self-similar Markov processes, *Ann. Probab.*, 40(2): 765-787.
22. Pardo J.-C., Patie P. and Savov M. (2012), A Wiener-Hopf type factorization for the exponential functional of Lévy processes, *J. London Math. Society* 86(3): 930-956.
23. Patie P. and Savov M. (2012), Extended factorizations of exponential functionals of Lévy processes, *Electron. J. Probab.*, 17(38): 1-22.
24. Patie P. and Simon T. (2012), Intertwining certain fractional operators, *Potent. Anal.*, 36: 569-587.
25. Cissé M., Patie P. and Tanré E. (2012), Optimal stopping problems for regular one sided Markov processes, *Ann. Appl. Probab.*, 22(3): 1243-1265.
26. Kyprianou A.E. and Patie P. (2011), A Ciesielski-Taylor type identity for positive self-similar Markov processes, *Ann. Inst. H. Poincaré Probab. Statist.*, 47(39): 917-928.
27. Patie P. (2010), A refined factorization of the exponential law, *Bernoulli*, 17(2):814-826.
28. Alili L. and Patie P. (2010), Boundary crossing identities for diffusions having the time inversion property, *J. Theor. Prob.*, 23(1), 65-84.
29. Patie P. (2009), Exponential functional of one-sided Lévy processes and Asian options, *C. R. Math. Acad. Sci. Paris*, 347 (7-8), 407-411.
30. Patie P. (2009), Law of the exponential functional of a new family of one-sided Lévy processes via self-similar continuous state branching processes with immigration, *Bull. Sci. Math.*, 133(4), 355-382.
31. Patie P. (2009), Infinitely divisibility of solutions to some semi-stable integro-differential equations and exponential functionals of Lévy processes, *Ann. Inst. H. Poincaré Probab. Statist.*, 45 (3), 667-684.
32. Patie P. (2009), A few remarks on the supremum of stable processes, *Statist. Probab. Lett.* 79(8):1125-1128.
33. Patie P. (2008), q -invariant functions associated to some generalizations of the Ornstein-Uhlenbeck semigroup, *ALEA Lat. Am. J. Prob. Math. Stat.*, 4:31-43.

34. Patie P. and Winter C. (2008), First exit time probabilities for multidimensional diffusion: A PDE-based approach, *J. Comput. Appl. Math.*, 222(1):43-53.
35. Alili L. and Patie P. (2007), On the joint law of the L1 and L2 norms of a 3-dimensional Bessel bridge, In *Séminaire de Probabilités XL*, vol. 1899 of LNM, p. 247-264, Springer, Berlin.
36. Patie P. (2007), Two sided-exit problem for a spectrally negative α -stable Ornstein-Uhlenbeck process and the Wright's generalized hypergeometric functions, *Electron. Comm. Probab.*, 12:146-160.
37. Alili L. and Patie P. (2005), On the first crossing times of a Brownian motion and a family of continuous curves, *C. R. Math. Acad. Sci. Paris*, 340(3):225-228.
38. Patie P. (2005), On a martingale associated to generalized Ornstein-Uhlenbeck processes and an application to finance, *Stochastic Process. Appl.*, 115(4):593-607.
39. Alili L., Patie P. and Pedersen J.L. (2005), Representations of the first hitting time density of an Ornstein-Uhlenbeck process, *Stoch. Models*, 21(4):967-980.
40. Embrechts P., Kaufmann R. and Patie P. (2005), Strategic long-term financial risks: Single risk factors, *Comput. Optim. Appl.*, 32(1-2):61-90.
41. Frey R. and Patie P. (2002), Risk management for derivatives in illiquid markets: A simulation study, *Advances in Finance and Stochastics*, Essays in Honour of D. Sondermann, 137-160.

REVISED/SUBMITTED PAPERS

42. Choi M.C.H. and Patie P. (2018), Analysis of non-reversible Markov chains via similarity orbit
43. Patie P. and Vaidyanathan A.(2018), Non-classical Tauberian and Abelian type criteria for the moment problem
44. Jarrow R.A., Patie P., Srapionyan A. and Zhao Y.(2018), Risk-neutral pricing techniques and example
45. Patie P. and Srapionyan A.(2018), Spectral projections correlation structure for short-to-long range dependent processes
46. Constantinescu C., Loeffen R. and Patie P.(2019), First passage times over stochastic boundaries of subdiffusive processes
47. Patie P. and Srapionyan A.(2019), Self-similar Cauchy problems and generalized Mittag-Leffler functions
48. Cheridito P., Patie P., Vaidyanathan A. and Srapionyan A.(2019), On non-local ergodic Jacobi semigroups: spectral theory, convergence-to-equilibrium, and contractivity
49. Alili L., Bartholmé C., Chaumont L., Patie P., Savov M. and Vakeroudis S. (2019), On Doney's striking factorization of the arc-sine law,
50. Miclo L. and Patie P. (2019), On interweaving relations

MANUSCRIPTS

Habilitation Thesis: Explicit Contributions to the Study of Self-Similar Markov Processes. University of Bern, October 2008.

Ph.D. Thesis: On some First Passage Time Problems Motivated by Financial Applications. ETH Zurich, December 2004.

3.2 Projects with industrial partners

- 2018: TD Bank, New-York - Machine Learning for Multi Asset Trend Following Strategy, MEng project.
- 2017: TD Bank, New-York - Volatility Trading, MEng project.
- 2016: Newmark Grubb Night Frank, New-York - U.S. Enterprise Headcount Modeling, MEng project.
- 2014-15: Guggenheim Asset Management New-York - Machine Learning in Merger and Acquisition Portfolio, MEng project.
- 2003-04: Swiss Re Zurich - Risk Measures for Long-Term Financial Risk, RiskLab project.
- 2002-04: UBS London - Measures of Market Illiquidity, RiskLab project.

3.3 Communications

INTERNATIONAL INVITATIONS

1. University of Torino, Italy, December 2019, 1 week.
2. ETH Zurich, Switzerland, November 2019, 1 week.
3. University Paul Sabatier, Toulouse, France, October 2019, 3 days.
4. Ecole Centrale, Lyon, France, September 2019, 2 days.
5. The Chinese University of Hong-Kong, China, June 2019, 1 week.
6. Toulouse School of Economics, France, May 2019, 2 weeks.
7. Toulouse School of Economics, France, December 2018, 2 weeks.
8. University Paul Sabatier, Toulouse, France, December 2018, 2 days.
9. University Paul Sabatier, Toulouse, France, July 2018, 4 days.
10. University of Manchester, UK, June 2018, 3 days
11. University of Liverpool, UK, June 2018, 2 days.
12. University of Cincinnati, US, April 2018, 3 days, Prof. J. Najnudel.
13. Probability Seminar, Cornell University, US, October 2017.
14. University of Toulouse, France, May 2017, 2 days, Prof. L. Miclo.
15. University of Manchester, UK, December 2016, 2 days, Prof. R. Loeffen.
16. Princeton University, US, April 2016, Prof. P. Cheredito.
17. Institut Fourier, Université de Grenoble, France, December 2015, 3 days.
18. Université de Pau et des Pays de l'Adour, France, December 2015, 7 days.
19. University of Illinois at Urbana-Champaign, US, November 2015, 2 days, Prof. R. Song.
20. Purdue University, US, November 2015, 3 days, Prof. F. Baudoin.
21. University of Maryland, US, September 2015, 3 days, Prof. P.E. Jabin.
22. Institut de Mathématiques Toulouse, France, July 2015, 2 days Prof. L. Miclo.
23. INRIA Sophia-Antipolis, France, May 2014, 2 days, Prof. D. Talay.
24. Center of Applied Mathematics colloquium, Cornell University, US, March 2014.
25. Institut de Mathématiques de Bourgogne, Dijon, France, November 2013, 1 week, Prof. M. Deaconu and S. Herrmann.
26. Analysis Seminar, Cornell University, US, October 2013.
27. University of Toronto, Canada, May 2013, 1 week, Prof. A Kuznetsov.
28. Probability Seminar, Cornell University, US, March 2013.
29. University of Michigan, United-States, February 2013, 2 days, Prof. E. Bayraktar.
30. Warwick University, United-Kingdom, November 2012, 2 days, Prof. L. Alili.
31. Cornell University, United-States, June 2012, 1 week, Prof. A. Lewis.
32. Université Louis Pasteur, Strasbourg, France, May 2012, 4 days, Prof. M. Emery.
33. INRIA Sophia-Antipolis, France, April 2012, 1 week, Prof. D. Talay.
34. Cornell University, United-States, February 2012, 3 days, Prof. A. Lewis.
35. Université de Lille 1, France, April 2011, 1 day, Prof. T. Simon.
36. Vienna University, Austria, April 2011, 2 days, Dr. K. Glau.
37. Swansea University, , March 2011, 3 days, Prof. N. Jacob.
38. University of Bath, UK, March 2011, 2 days, Prof. A. Kyprianou.

39. The University of Oxford, UK, March 2011, 4 days, Dr. M. Savov.
40. ISFA, Université de Lyon 1, France, February 2011, 2 days, Prof. V. Maume-Deschamps.
41. Université de Strasbourg, France, December 2010, 4 days, Dr. V. Vigon.
42. Université de Pau et des Pays de l'Adour, France, December 2010, Prof. F. Avram.
43. University of Manchester, UK, November 2010, 2 days, Prof. G. Peskir.
44. HEC Lausanne, Switzerland, April 2010, Prof. H.-J. Albrecher.
45. University of Nice Sophia-Antipolis, France, April 2010, 3 days, Prof. F. Delarue.
46. University of Bath, UK, March 2010, 1 week, Prof. A. Kyprianou.
47. University of Lille 1, France, January 2010, Prof. T. Simon.
48. University of Pau et des Pays de l'Adour, France, October 2009, 1 month, Prof. F. Avram.
49. INRIA Sophia-Antipolis, France, September 2009, 1 week, Prof. D. Talay.
50. University of Warwick, United-Kingdom, June 2009, 1 week, Dr. L. Alili.
51. University of Rouen, France, March 2009, 1 week, Prof. P. Lescot.
52. EPF Lausanne, Switzerland, March 2008, Prof. R. Dalang.
53. University of Bath, UK, February 2008, 3 days, Prof. A. Kyprianou.
54. University of Manchester, UK, February 2008, 1 week, Prof. R. Doney.
55. INRIA Sophia-Antipolis, France, January 2008, 1 month, Prof. D. Talay.
56. ETH Zurich, Switzerland, November 2007, 3 days, Prof. F. Delbaen.
57. Swiss Probability Seminar, UBe, Switzerland, May 2007.
58. University of Fribourg, Switzerland, January 2007, 1 day, Prof. C. Mazza.
59. CIMAT, Guanajuato, Mexico, December 2006, 2 weeks, Prof. V. Rivero.
60. University of Strasbourg, France, November 2006, 1 week, Dr. V. Vigon.
61. University of Freiburg, Germany, September 2005, 3 days, Prof. E. Eberlein.
62. Heriot Watt University, UK, May 2005, 3 days, Prof. A. Kyprianou.
63. University of Manchester, UK, May 2005, 2 days, Prof. R. Doney.
64. LMU Munich, Germany, February 2005, 2 days, Prof. D. Filipovic.
65. University of Konstanz, Germany, December 2004, 1 day, Prof. J. Jackwerth.
66. Warwick University, UK, September 2004, 2 weeks, Dr. L. Alili.
67. University of Manchester, UK, July 2004, 2 days, Prof. R. Doney.
68. University of Technology of Sydney, Australia, October 2003, 5 weeks, Prof. A. Novikov.
69. University of Melbourne, Australia, October 2003, 2 days, Prof. K. Borovkov.
70. Goethe Universität, Germany, November 2001, 2 days, Prof. U. Wystup.
71. University of Lugano, Switzerland, May 2001, 2 days, Prof. F. Trojani.
72. UBS-Warburg, London, UK, May 2001, 2 days.

INTERNATIONAL CONFERENCES (INVITED SPEAKER)

1. 9th International Conference on Lévy Processes, Samos, Greece, July 2019.
2. International Conference on Stochastic Analysis and Related Topics, Xuzhou, China, June 2019.
3. Perspectives on Actuarial Risks, Sibiu, Romania, April 2019.
4. AMS Sectional Meeting, University of Connecticut, USA, April 2019.
5. The 40th Stochastic Processes and their Applications International Conference, Gothenburg, Sweden, June 2018.

6. 14th International conference on Mathematics and Applications, Jaca, Spain September 2017.
7. Stable Processes, Banff International Research station, November 2016.
8. The 7th Conference on Lévy Processes: Theory and Applications, Angers, France, July 2016.
9. Conference in Honor of M. Yor, Kyoto University, Japan, June 2016.
10. 1st Eastern Conference on Mathematical Finance, Worcester, US, March 2016.
11. 19th International Congress on Insurance: Mathematics and Economics, Liverpool, UK, June 2015.
12. Finger Lakes Probability Seminar, Rochester, April 2015.
13. Journées de Probabilités, CIRM, France, May 2014.
14. Workshop "Hitting times and exit problems for stochastic models", Dijon, France, November 2013.
15. International conference Lévy Processes and Selfsimilarity, Tunis, Tunisia, November 2013.
16. The 7th Conference on Lévy Processes: Theory and Applications, Wroclaw, Poland, July 2013.
17. Workshop on Lévy Processes, Zurich, Switzerland, December 2012.
18. XII Latin American Congress of Probability and Mathematical Statistics, Viña del Mar, Chile, March 2012.
19. INFORMS Applied Probability Conference, Stockholm, Sweden, July 2011.
20. 7th Seminar on Stochastic Analysis, Random Fields and Applications, Ascona, Switzerland, May 2011.
21. The 6th Conference on Lévy Processes: Theory and Applications, Dresden, Germany, July 2010.
22. Journées de Probabilités, Dijon, France, June 2010.
23. Crossing Barriers: Hitting and stopping time problems in Finance and Insurance, Bath, UK, January 2010.
24. International Conference on Selfsimilar Processes and their Applications, Angers, France, July 2009.
25. Workshop on Probability and Statistical Mechanics. Neuchâtel, Switzerland, September 2008.
26. Sixth Seminar on Stochastic Analysis, Random Fields and Applications, Ascona, Switzerland, May 2008.
27. Journées de Probabilités, La Londe, France, September 2007.
28. International Conference of Applied Mathematics, Plovdiv, Bulgaria, August 2006.
29. Journées MAS de la SMAI, Contrôle Stochastique et Statistique, Lille, France, September 2006.
30. Journée Probabilités et Finance, University of Nice and INRIA, France, December 2005.
31. The 4th Conference "Lévy Processes: Theory and Applications", University of Manchester, UK, January 2005.
32. Journées MAS de la SMAI, Contrôle Stochastique et Statistique, Nancy, France, September 2004.
33. Risk Day 2001, ETH Zurich, Switzerland, October 2001.
34. Stochastic Approaches in Finance, Insurance and Physics, TU Munich, Germany, September 2000.
35. Swiss Re workshop, Zurich, Switzerland, June 2000.

OTHER CONFERENCES

1. The 3rd Conference "Lévy Processes: Theory and Applications", Université Paris 6, June 2003.

2. From Lévy Processes to Semimartingales: Recent Theoretical Developments and Applications to Finance, MaPhySto University of Aarhus, August 2002.
3. Numerical Modelling in Finance, Université of Paris-Dauphine, December 2000.
4. Bachelier Conference 2000, Paris, June 2000.
5. Swiss Probability Seminar, UBe, May 2000.

4 Teaching Activities

4.1 Teaching

- Cornell
 - ORIE 5600, Stochastic Calculus for Financial Engineering I, Fall 2018
 - ORIE 3500/5500, Engineering Probability and Statistics II, Fall 2104, 2015, 2017.
 - ORIE 6510, Probability, Spring 2017, 2019.
 - ORIE 6540, Advanced Stochastic processes, Fall 2015.
 - ORIE 6500, Applied Stochastic Processes, graduate course, Fall 2013.
 - ORIE 5610, Stochastic Calculus for Financial Engineering II, Master in Financial Engineering, Spring 2013, Spring 2014, Spring 2015, Spring 2016.

- ULB
 - Mathématiques générales
Bachelor in Chemistry and Bio-engineers, Fall 2010, Fall 2011.
 - Mathématiques générales
Bachelor in Biology, Spring 2010.
 - Lévy processes in Finance and Insurance
Master in Actuarial Sciences, ULB, Spring 2011, Spring 2012.
 - Assurance non vie
Master in Actuarial Sciences, ULB, Fall 2009, Fall 2010, Fall 2011, Fall 2012
 - Stochastic Processes
Master in Statistics, ULB, Fall 2009, Fall 2010, Fall 2011, Fall 2012.

- UBe
 - Advanced course : A Study of Markov Processes
Master in Statistics, Fall 2008.
 - Stochastische Prozesse II: Continuous-Time
with Prof. I. Molchanov, Master in Statistics, Spring 2008.
 - Student Stochastic Seminar: Risk Measures
with Prof. I. Molchanov, Master in Statistics, Fall 2007.
 - Stochastische Prozesse I: Discrete-Time
with Prof. I. Molchanov, Master in Statistics, Spring 2008.
 - Student Stochastic Seminar: An Introduction to Random Matrix Theory
with Prof. I. Molchanov, Master in Statistics, Spring 2007.

- Invited
 - First passage times: From processes to jumps to moving boundaries problems.
Toulouse School of Economics, France, December 2019.
 - Mathematical Finance: Continuous-Time Models
Long life education in Risk Modelling, ULB, Fall 2010, Fall 2011.

- Introduction to Probability Theory
Long life education in Risk Modelling, ULB, Fall 2010, Fall 2011.
- Mathematical Finance
Master en mathématique, EPF Lausanne, Spring 2009.
- Stochastic Calculus for Finance
Konstanz Universität, Doctoral Program in Quantitative Economics and Finance, Spring 2005, 2006, 2008.
- Introduction to Linear Diffusions
INRIA, cours pour des étudiants doctorants, Spring 2006.
- Mathematical Finance: Continuous-Time Models
Master in Economics, Université de Zurich, Fall 2002.
- Finite Element Methods in Finance
Master in Mathematics, EPF Zurich, Fall 2002.

4.2 Advising

PostDoc:

- Dr. S. Vakeroudis, Project ARC IAPAS, ULB, October 2012 - September 2013
Topic: Fluctuation Theory for one-sided Markov processes.
- Dr. M. Chazal, Post-doctoral position, ULB, since October 2009.
Topic: Spectral theory for affine processes.
- Dr. R. Loeffen, AXA Post-doctoral Fellowships, ULB, January 2010 - January 2011
Topic: Modern actuarial risk theory.

PhD:

- Yuxuan Liu, ORIE, Cornell University, since Spring 2019
Topic: Subdiffusive models in Finance
- Phillip Doldo, CAM, Cornell University, since Fall 2018
Topic: Heat kernel estimates for some non-markovian processes
- Andrew Chew, ORIE, Cornell University, since Fall 2018.
Topic: Non-colliding Markov processes and random matrix theory
- Rohan Sarkar, ORIE, Cornell University, since Fall 2017.
Topic: Spectral theory of multidimensional Markov semigroups
- Jian Wang, ORIE, Cornell University, since Spring 2017.
Topic: Fluctuation theory of continuous-time Markov processes
- Aditya Vaidyanathan, CAM, Cornell University, graduated May 2019.
Contributions to the Stieltjes moment problem and to the intertwining of Markov semigroups
- Anna Srapionyan, CAM, Cornell University, graduated May 2019.
Some spectral ideas applied to finance and to self-similar and long-range dependent processes
- Yixuan Zao, ORIE, Cornell University, graduated 2017.
Spectral expansions and excursion theory for non-self-adjoint Markov semigroups with applications in mathematical finance

- Chek Hin Choi, ORIE, Cornell University, graduated 2017.
Analysis of non-reversible Markov chains.
- C. Bartholmé, ULB, graduated August 2014.
Self-similarity and exponential functionals of Lévy processes.
- C. Van Weverberg, ULB, graduated in August 2015, co-direction with G. Deelstra
Matrix-valued Affine Processes.

Bachelor/Master:

- Yuexing Li, Dynkin isomorphism and boundary crossing problems for Brownian motion, Spring and Fall 2014.
- A. Cagley: Sophomore ORIE (minor CS), Cornell University,
Topic: Simulation and the Black-Scholes model, summer 2013.
- O. Petermann: Master Project, Master in Mathematics, ULB
Topic: Hitting times of skip-free Markov chains, 2012-2013.
- V. Buffaria: Master Project, Master in Mathematics, ULB
Topic: Lie group methods for fractional equations, 2011-2012.
- R. Viroux: Master Project, Master in Mathematics, ULB
Topic: Coherent risk measures, 2011-2012.
- O. Petermann: Bachelor Project, Bachelor in Mathematics, ULB
Topic: Spectral analysis of birth and death processes, 2010-2011.
- A. Larif: Master project, Master in mathematics, EPFL
Topic: Incomplete Markets, Summer semester, 2009.
- L. Gaudias: Master project, Master in mathematics, EPFL
Topic: Asian options, Summer semester, 2009.
- M. Cirit: Bachelor project, Bachelor in Mathematics, UBe
Topic: Premium principles in insurance, Summer semester 2009.
- D. Burren: Master thesis, Master in Statistics, UBe
Topic: Continuous state branching processes in finance, Winter semester 2008.

5 Organization and Administrative Duties

AWARDS/GRANTS

- 2018 Visiting Professor, Toulouse School of Economics, France, December 2018 and June 2019.
- 2016 NSF Grant, Asymptotically Efficient and Efficiently Computable Bayesian Estimation, co-Pi with PI L. Saloff-Coste, 120.000 dollars.
- 2016 CNRS researcher grant. Université de Pau et des Pays de l'Adour, France, 5.000 dollars.
- 2016 NSF Grant, Finger Lakes Probability Seminar, co-Pi with J. Pike and C. Mueller, 7.439 dollars.
- 2012 Action de Recherche Concerté (ARC) by the Gouvernement de la communauté Française (PI) with D. Bonheure, G. Deelstra and C. Lefèvre (ULB)
Project: Interplay between Analysis, Probability and Actuarial Sciences, 5 years, 500.000 euros.
- 2011 Assistantship research grant by the Belgium National Fund of Scientific Research (FNRS)
Project: Matrix valued affine processes: Theoretical studies and their applications in finance, 3 years, \simeq 130.000 euros. Candidate: C. Van Weverberg (ULB).
- 2011 Grant from the fondation Anspach-Wiener,
Visit of M. Savov from the University of Oxford, 1.000 euros.
- 2011 Grant from the region Nord-Pas-de-Calais,
Organisation of the international conference "Self-similarity and related topics", with T. Simon, 55.000 euros.
- 2011 Mission Scientifique grant awarded by FNRS,
1 month visit of M. Savov from the University of Oxford, 2.500 euros.
- 2010 Assistantship research grant by the FNRS
Project: Exponential functional of Lévy processes and insurance mathematics, 3 years, \simeq 130.000 euros. Candidate: Carine Bartholmé (ULB).
- 2010 Grant award from the National Bank of Belgium
Project: *Around Asian Options*, 9.800 euros.
- 2009 Post-doctoral fellowship from the AXA research fund
Project: *Modern Actuarial Risk Theory*, 1 year, 60.000 euros.
Candidate: Dr. Ronnie Loeffen.
- 2010 Grant award from the ULB, 5.000 euros.
- 2008 Assistantship research grant by the Swiss National Science Foundation
Project: *Fluctuation theory for one-sided Markov processes with application in insurance and finance: theoretical, numerical and inferential aspects*, No 2000021_121901, 3 years, 151.951 CHF, with Prof. R. Gatto.
- 2007 Grant award from the UBe, 2.000 CHF.

ADMINISTRATIVE DUTIES

- 2018-19 Director of Undergraduate Studies, ORIE, School of Engineering (CU).
- 2017-18 Search Committee Faculty Position, ORIE and NY Tech (CU).
- 2017-18 Faculty Advisor, Freshmen (23 students), School of Engineering, (CU).
- 2017-18 Search Committee Faculty Position, ORIE and NY Tech, (CU).
- 2014-18 Faculty Advisor, MEng students (~ 20 students/year), ORIE, (CU).
- 2014-15 Admission committee of PhD program in Applied Math., (CU).
- 2013-17 Admission committee of MEng program, (CU)
- From 2009 Secretary of the Master in statistics, ULB
- From 2009 Member of the committee for the Master program in Actuarial Sciences , ULB
- From 2010 President of the PhD committee of S. Dendhiev.
- From 2010 Responsible of the exams organization in the Mathematical Department, ULB
- From 2009 Member of the committee for the Bachelor program in Mathematics, ULB

ORGANIZATIONS

- 2019 Co-organizer of the Finger Lakes probability seminar.
- 2016-19 Co-organizer of the Probability Seminar, Cornell.
- 2016 Co-organizer of the Finger Lakes probability seminar.
- 2015 Scientific committee and local organizer of the international conference "Adventures in Self-Similarity", Cornell University.
- 2015-16 Co-organizer of the Center of Applied Mathematics colloquium, Cornell.
- 2014 Member of the organizing committee for the Bachelier Society Conference, Bruxelles.
- 2012 Organization of the Workshop IPAS "Interplay between Probability and Actuarial Sciences", Université Libre de Bruxelles.
- 2012 Member of the organizing committee of the AMAMEF conference, "Actuarial and Financial Mathematics Conference", Bruxelles.
- 2011 Organization of a short course for the Doctoral School in Statistics, ULB Prof. R. Doney, Fluctuation theory for random walks and Lévy processes.
- 2009-11 Organizer of the Actuarial Sciences seminar, ULB.
- 2010-11 Co-organizer with G. Deelstra of the in-serving training (formation continue), 2 University Certificates: risk modeling and quantitative methods in finance, ULB. Budget of the trainee: $\simeq 110.000$ euros.
- 2011 Member of the organizing committee of the AMAMEF conference, "Actuarial and Financial Mathematics Conference", Bruxelles.
- 2011 Member of the organizing committee of the conference, "Self-similarity and stochastic analysis", Le Touquet.
- 2011 Member of the project FP7 Marie Curie Initial Training Network, Advanced Mathematical Methods for Finance with Applications to Risk Management, Insurance and Sustainable Economics.
- 2010 Co-chair of the conference "journée de contact FNRS sciences actuarielles", ULB.

EXPERT ACTIVITIES

Thesis Committee	Laura Gay, Ecole Centrale Lyon, France, September 2019. Mehrez, Edward, Field of Economics, Cornell In-Process. Copros, Guillaume, Universit�� Toulouse 3 Paul Sabatier, July 2018. Verdiyan, Vardan, Center of Applied Mathematics, Cornell, May 2016. Ashivni Shekhawat, Cornell (Physics), April 2013, proxy of Prof. S. Resnick, X. De Scheemaekere, ULB, February 2011. D. Chedom Fotso, UPPA, December 2010. M. Gatty, ULB, September 2010. I. Diallo, ULB, January 2010.
Editor	Associate Editor Stochastic Models, since March 2019 Associate Editor of Risks, since Sept. 2014. Guest Editor of the special issue of the journal <i>Risks</i> on "Application of Stochastic Processes in Insurance", 2013.
Referee	
Probability:	Ann. Prob., Prob. Th. Rel. Fields, Prob. Survey, Elect. J. Probab., Stoch. Proc. and Appl., Bernoulli, Stochastics, S��minaire de Probabilit��s.
Applied Probability:	Ann. Appl. Prob., Stoch. Models, Math. Finance, Quantitative Finance, Astin Bulletin, Risk,
Other fields of math.:	London Math. Soc., J. Funct. Anal., Pot. Anal., Expo. Mathematica.
Grants	Humboldt Research Fellowship, Germany. Swiss National Science Foundation. National Science Center in Poland. Free Competition of the Netherlands Organisation for Scientific Research. Fond de la Recherche Scientifique, Belgium. Engineering and Physical Sciences Research Council, United Kingdom

MISCELLANEOUS

Languages	French: mother tongue English: fluent Spanish: basic conversational skills
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