

CURRICULUM VITAE¹
Prof. Thomas S. Salisbury

CONTACT INFORMATION:

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EDUCATION:

Ph.D. in Mathematics – 1983, University of British Columbia
B.Sc. in Mathematics – 1979, McGill University

RESEARCH INTERESTS:

Brownian motion, conditioning, superprocesses, Random walks in random environments, Markov processes, excursions, Martin boundaries, actuarial and mathematical finance, variable annuities

EMPLOYMENT:

York University: Full Professor (since 1994), Assoc. Prof. (1988–1993), Assist. Prof. (1985–1988)

Purdue University: Research Assistant Professor (1983–1985)

Visiting positions: Fields Institute (1997–1999, Winter 2010), Institut Henri Poincaré (Fall 2009),
Université de Paris Sud (Fall 2009), Univ. of Auckland (Statistics Dept., Winter 2009 & 2014),
MSRI (Winter 1998), University of Edinburgh (Fall 1991), UBC (Fall 2014)
University of California San Diego (1987–1988), Stanford University (Summer 1986)

HONOURS & SELECTED ACTIVITIES

Mathematics:

- President, Canadian Mathematical Society (2006–2008)
- Deputy Director, Fields Institute (2003–2006)
- Graham Wright award for distinguished service, Canadian Mathematical Society (2015)
- Chair, York Department of Mathematics & Statistics (2000–2003)
- Member, NSERC evaluation group, Mathematics & Statistics (2012, 2013, 2015, 2016)
- Fellow, Institute of Mathematical Statistics (since 2003)
- Fellow, Fields Institute (since 2002)

Finance/Insurance:

- Director of Analytics, Quantitative Wealth Management Analytics (QWeMA) Group, 2005–2013
- Project leader, MITACS/Mprime insurance project (2008–2012)
- Instructor, PRM exam preparation course, PRMIA/Fields Institute (2008, 2010, 2011)
- Instructor, Financial Engineering Diploma program, York University (since 1999)
- Instructor, QWeMA retirement risk analytics course, Fields Institute (2009, 2010)
- Principal organizer, Fields Institute seminar on quantitative finance (2003–2006)

¹February 23, 2016

Education:

- Member, Curriculum Council, Ontario Ministry of Education (2007–2009)
- Chair, Minister’s task force on senior high school mathematics (2006)
- Co-chair, Fields Institute Mathematics Education Forum (2003–2006)
- Board of directors, International Mathematical Olympiad Corporation (1995–1996)

EDITORIAL

Canadian Mathematical Bulletin: Editor-in-Chief (with S. O. Kochman) (1990–1995)

Probability Theory and Related Fields: Editorial Board (1994–2000)

Fields Institute Communications & Monographs: Editorial Board (since 2003)

Potential Analysis: Editorial Board (2000–2005)

Canadian Journal of Statistics: Editorial Board (1992–1994)

PROGRAM REVIEWS

- COU review, Dept. of Math. and Statistics, Univ. of Guelph (with B. Smith, Jan 2015)
- OCGS initial review, Masters of Mathematics for Teachers, Univ. of Waterloo (with K. Taylor, March 2010)
- Univ. of Toronto, Mathematical Finance Program (with J. Chadam) (2008)

CONFERENCES & PROGRAMS ORGANIZED*Mathematics:*

- IMS/Bernoulli Society World Congress in Probability and Statistics, July 2016 (Fields Institute, Toronto). Chair, local organizing committee
- SSC annual meeting, Toronto, May 25–28, 2014. Session on Spatial Stochastic Processes
- CMS Winter meeting, Toronto, December 10–12, 2011. Session on Probability (with J. Quastel)
- Seminar on Stochastic Processes – Principal Organizer
 - Fields Institute, March 15–17, 2007
 - Fields Institute, March 18–20, 1999
- Seminar on Stochastic Processes – Scientific program committee, Archivist
 - Univ. of Maryland, March 16–19, 2016
 - Univ. of Delaware, April 1–4, 2015
 - Univ. of California, San Diego, March 26–29, 2014
 - Duke Univ., Durham NC, March 14–16, 2013
 - Univ. of Kansas, Lawrence, March 22–24, 2012
 - Univ. of California, Irvine, March 24–26, 2011
 - Univ. of Central Florida, March 11–13, 2010
 - Stanford University, March 26–28, 2009
 - University of Delaware, April 3–5, 2008
 - Princeton University, March 23–25, 2006
 - University of British Columbia, May 20–22, 2004
 - University of Washington, March 27–29, 2003
 - Princeton University, March 21–23, 2002
 - University of Florida, March 8–10, 2001
- 1st CMS-SMM joint meeting, Guanajuato Mexico, Sept 21–23, 2006: Session on Probability
- Symposium on the creative & scientific legacies of Iannis Xenakis, June 8–10, 2006 (principal organizer Jim Harley)
- SSC meeting, May 26–29, 2002, Hamilton: Session on Probability.

- Annual meeting of Canadian Mathematics Department Chairs
 - Fields Institute (2002). Organizer (with H. Gaskill, R. Erdahl)
 - University of Ottawa (2001). Organizer (with G. Bluman, H. Gaskill)
- CMS Winter meeting, December 2001, Toronto – Meeting Director
- AMS meeting, September 23-24, 2000, Toronto: Session on Probability (with N. Madras, G. O'Brien, D. Salopek)
- Workshop on Num. Methods & Stochastics, Fields Inst, Apr 19–23, 1999 (with T. Lyons)
- Fields Institute thematic programme on *Probability and its Applications*, Fields Institute, August 1998 - June 1999: Principal Organizer (with D. Dawson, N. Madras, G. Slade)
- SSC-IMS joint meeting, Montreal, July 9-13, 1995: Session on Probability and Analysis
- 21st Bernoulli Society Conference on Stochastic Processes and their Applications, York University June 14–19, 1992 (with G. O'Brien, N. Madras, D. Tanny)
- York/McMaster Probability Day, York Univ.: 7th (1996), 5th (1994), 3rd (1992), 1st (1990)
- 84th Ontario Mathematics Meeting, York University (1989): Special Session on Probability

Finance/Insurance:

- 1st North American meeting on Industrial and Applied Mathematics, Oaxaca Mexico, Dec. 8–10, 2010. Organizer, session on *Financial mathematics and economy* (with K. Giesecke & B. Rumbos).
- Fields Institute Industrial–Academic forum on *Financial engineering and insurance mathematics*, Fields Institute, June 21, 2010.
- MITACS Economic Summit on Systemic Risk, Toronto, April 27–29, 2009: Organizer, session on *Risk control in the insurance industry*
- IFID/MITACS Conference on financial engineering for actuarial mathematics, Fields Institute, Nov 9–10, 2008 (with H. Huang, M.A. Milevsky, D. Promislow, K. Moore, S. Jaimungal)
- 2nd Canada-France Math. Congress, Montreal, June 1–5, 2008: Session on Financial Math.
- MITACS-MCME Workshop on Risk Analysis, York University, Dec. 11, 2007
- CMS Summer meeting, Waterloo, June 4–6, 2005: Session on Math. of actuarial finance
- Symposium on Numerical Stochastics in Finance, Fields Inst., April 19, 1999 (with T. Lyons)

Education:

- Canadian Mathematics Education Forum, Fields Institute, May 6–8, 2005: local organizer
- Canadian School Mathematics Forum, UQAM, May 16–18, 2003: Working group on Mathematics Teacher Training, Algebra, and Teacher Shortages
- CMS Winter Mathematics Training Camp, York University: local organizer (2001–2003)
- 1995 International Mathematical Olympiad, York University (1995): local org. committee

STUDENTS & POSTDOCTORAL FELLOWS

Postdoctoral Supervision:

- Yevhen Mohylevskyy, 2014–2015 (co-supervised with A. Kuznetsov, N. Madras)
- Alexander Chigodaev, 2013–2014 [PDF, NRU Higher School of Economics, Moscow]
- Xianhua Peng (co-supervised with A. Kuznetsov), Fields-Ontario PDF, 2009/10 [Hong Kong Univ. of Sci & Tech.]
- Deniz Sezer (co-supervised with N. Madras), 2005/08. [Univ. of Calgary]
- Min Kang (co-supervised with N. Madras & G. O'Brien), 1998/99. [N. Carolina State Univ.]
- Stas Volkov (co-supervised with N. Madras & G. O'Brien), 1998/99. [Univ.of Bristol]
- Rami Atar (co-supervised with N. Madras & G. O'Brien), 1998/99. [Technion]
- John Verzani, 1995/96. [CUNY, Staten Island]

PhD Supervision:

- Branislav Nikolic (since 2015)
- Bushra Ashraf (since 2015)
- Yang Fenghao (since 2013, co-supervised with A. Kuznetsov)
- Mark Beider (since 2010)
- Yun Qiao (2006–2012): *Pricing and hedging of guaranteed lifetime withdrawal benefits.*
- Michael Moras (2004–2008): *Conditioned super Brownian motion in Denjoy domains and strips.*
- Yumin Wang (2002–2008): *Mathematical finance related to insurance contracts Quantile hedging and efficient hedging for guaranteed minimum death benefits.*

Masters Supervision:

- *Survey Papers*
 - Bushra Ashraf (2014–2015): Optimal design of retirement income products.
 - Nancy Temraz-Pakeman (2013–2014): The willow tree pricing algorithm
 - Mohamed Abdelghani (2007–2008): Introduction to filtering theory with applications to finance
- *Financial Engineering research projects*
 - Andy Koh: Resampling efficient portfolios via generalized hyperbolic distributions under CVaR constraints for Canadian assets
 - Bushra Ashraf – see “survey papers”
 - Xian Zhang (2011): Volatility of portfolios incorporating mortality linked securities
 - Jessica Tsang Kwai Kew (2010): Asset allocation and efficient frontiers for mortality-linked securities
 - Francois Ouegnin (2008): Linear bi-level programming and optimal allocation problem
 - Yun Qiao (2006): Indifference pricing for GMWBs
 - Gul Oye Ege (2003–2004): Liquidity premia
 - Romana Danicic (2002–2003): Calculating the Liquidity Premium for Fixed Annuities When Interest Rate Follows a Stochastic Process
 - Yumin Wang (2001–2002): Quantile hedging for Bermudan Options
 - Asrat Gashaw (2001–2002): Credit Risk methodologies
 - Shannon Kennedy (2001–2002): Liquidity premiums for variable annuities

NSERC undergraduate summer research projects:

- Jenny Du (2004): Hedge fund modelling
- Ana Duff (1994): Best constants in capacity inequalities for Markov chain pairs: numerical analysis via simulated annealing

RAY (Research at York) summer research projects:

- Kaveh Arabpour (2015): Variable tontine annuity

MEDIA

- *John Gormley Show* guest, CKOM radio, Saskatoon. Call-in segment on Tontines, October 6, 2015
- In: “Life settlements provide seniors a way to improve cash flow”, Montreal Gazette on-line, Jan 12, 2015
- In: “Research mathematicians gather to examine retirement issues and pensions”, by Dave MacLean, Telegraph Journal, Saint John NB, June 1, 2009
- In: “Lady Luck smiles on too many in 6-49 draw as 239 2nd prize tickets cut payout”, by Michelle Mcquigge, The Canadian Press, March 20, 2008

- *The Nature of Things*, CBC TV: *Everyday Einstein* (segment on Brownian motion) – D. Zuckerbrot producer, June 18, 2006
- OMNI TV: profile of the Fields Institute (segment on math & music) – 2005
- IMO Press Conferences – July 1995
- *Metro Morning*, CBC Radio, Toronto (IMO segment), July 20, 1995

CONFERENCE PRESENTATIONS

Finance/Insurance:

- CMS Winter meeting, Montreal, Dec 5-8, 2015.
Mathematical finance session: *Optimal tontines*
- CAIMS Annual meeting, Saskatoon, Jun. 22-26, 2014.
Finsurance session: *Optimal initiation for variable annuities*
- SSC Annual meeting, Toronto, May 25-28, 2014.
Session on Actuarial Finance: *Optimal tontines*
- IFID conference, Fields Institute, Toronto, Nov. 22, 2012:
Optimizing variable annuity income
- 3C Risk Forum, Fields Institute, Toronto, Oct. 28-30, 2011:
Planning for retirement: sustainability vs. legacy
- 1st North American meeting on Industrial and Applied Mathematics (NAMIAM), Oaxaca Mexico, Dec. 10, 2010. Session on Financial Mathematics and Economy.
Optimal utilization of variable annuity guarantees.
- Insurance: Mathematics and Economics, Toronto, June 18, 2010.
Optimal utilization of variable annuity guarantees: To add, subtract, or multiply?
- AFIR Colloquium (International Actuarial Association Financial Risks Section), Munich, Sept. 9-11, 2009. Session on Pensions – managing accumulations and decumulations
Valuation, hedging and demand for ruin-contingent life annuities (RCLA)
- MITACS Annual meeting, Plenary speaker, Fredericton, June 3, 2009:
Insurance and Modern Finance
- Mindpath Conference, 3rd Investment Strategies Symposium, Toronto, Oct 20, 2008:
The Retirement Income Time-Bomb – Risks & Challenges
- Manulife Investments, Best Practices Symposium III, Quebec City (Oct 30, 2006), Montreal (Nov 1, 2006): *Pour traverser la zone à risque pour la retraite, il faut plus que la répartition de lactif*
- SIAM Conference on Financial Mathematics & Engineering, Boston, July 9–12, 2006. Session on Mathematics of Insurance: *Pricing and hedging of Guaranteed Minimum Withdrawal Benefits*
- Fields Institute, Quantitative Finance seminar, Oct. 25, 2006: *GMWBs*
- Sociedad Matemática Mexicana Meeting, Mexico City, Oct. 24, 2005. CMS-SMM session:
Options, Hedging, and Actuarial Finance
- Canadian Institute of Actuaries, 2003 Investment Symposium, Toronto, Nov. 9-11, 2003:
Capital Markets Hedging for Insurance Products (co-presenter M.A. Milevsky)
- Annual Winter Meeting of the Canadian Mathematical Society, Ottawa, 2002. Special Session on Financial Mathematics: *Liquidity premiums for variable annuities*
- Fields Institute workshop on Options in Financial Products: Approaches to Valuation, Toronto, December 2001: *The Real Option to Lapse a Variable Annuity: Can Surrender Charges Complete The Market?* (co-presenter with M.A. Milevsky)
- Summer Meeting of the Canadian Mathematical Society (MATH 2000), Hamilton, 2000. Session on Financial Mathematics: *Knockout Baskets and Survivorship Bias*

Mathematics:

- CMS Winter meeting, Montreal, Dec 5-8, 2015.
Measure valued diffusions session: *X-harmonic functions for super-Brownian motion*
- 38th Conference on Stochastic Processes and their Applications, Oxford UK, Jul 13–17, 2015: *Ballisticity for random walk in a non-elliptic random environment*
- 37th Conference on Stochastic Processes and their Applications, Buenos Aires, Jul 28 – Aug 1 2014: *Non-existence of stable policies for critical queueing networks with infinite supply*
- New Zealand probability workshop, Te Anau NZ, Jan. 6–10, 2014: *Random walks and degenerate random environments*
- International symposium on asymptotic methods in stochastics, Ottawa, July 3-6, 2012.
Random walk in degenerate random environment
- New Zealand Probability Workshop, Auckland, Jan 23–24, 2012.
Random walk in degenerate random environment
- 2012 NZMRI/NZIMA Summer Workshop: Random media and random walks. Nelson, New Zealand, Jan 8-13, 2012. *Superprocesses and Branching random walks*
- Symposium in honour of Donald A. Dawson’s work, on the occasion of his 70th birthday, Carleton, June 5–8, 2007. *Conditioned super-Brownian motion*
- 1st CMS-SMM joint meeting, Guanajuato Mexico, Sept 21–23, 2006. Session on Probability
- CMS Winter meeting, Victoria, Dec 10-12, 2005. Session on probability:
Singular stochastic integral equations
- Banff International Research Station, Banff, Sep 27–Oct 2, 2003. Conference on stochastic partial differential equations:
- Mathematisches Forschungsinstitut Oberwolfach, Conference on Branching Processes, Oberwolfach Germany, July 6–12, 2003. *Conditioned super-Brownian motion*
- 4th Annual meeting of Canadian Mathematics Department Chairs, Toronto 2002.
The Department of Mathematics and Statistics at York University
- Probability Conference in honour of David Blackwell and Lester Dubins, Berkeley, 2002,
The complement of the planar Brownian path
- 3rd World Congress of Nonlinear Analysts, Catania, Sicily 2000. Session on Aspects of Stochastic Calculus: *Conditioned Super-Brownian Motion*
- First China-Canada Congress of Mathematical Sciences, Beijing 1999. Special Session on Probability Theory: *Conditioned Super-Brownian Motion*
- Annual Winter Meeting of the Canadian Mathematical Society, Kingston 1998 Special Session on Probability: *The Complement of the Planar Brownian Path*
- International Conference on Stochastic Models, Ottawa 1998: *On the Conditioned Exit Measures of Super Brownian Motion*
- 924th Meeting of the American Mathematical Society, Montreal 1997. Session on Potential Theory: *Minimal Parabolic Functions*
- 3rd World Congress of the Bernoulli Society, Chapel Hill 1994. Session on Brownian Motion and Analysis: *Brownian Spirals*. Directions in Probability Workshop: *Heat Kernel Estimates and Extremal Problems arising in studying Brownian Motion and Conditional Brownian Motion* (for R. Banuelos)
- Annual Winter Meeting of the Canadian Mathematical Society, Montreal 1992.
Session on Stochastic Analysis: *Spiralling Brownian Motions*.
Session on Potential Theory: *Parabolic Martin Boundaries*
- Mathematisches Forschungsinstitut Oberwolfach, Conference on Stochastic Analysis, Oberwolfach Germany, 1992: *Parabolic Martin Boundaries*

- Mathematical Sciences Institute, Workshop on Stochastic Analysis, Ithaca 1992: *Conditioned Brownian Motion*
- 19th Conference on Stochastic Processes and their Applications, Haifa Israel 1991. Plenary Lecture: *Conditioned Brownian Motion*
- Annual Meeting of the Statistical Society of Canada, Ottawa 1989; Session on Stochastic Processes: *Path Intersections*
- Mathematical Sciences Institute, Workshop on Markov Processes in Functional Spaces, Ithaca 1989: *The Maximum Principal for Bi Brownian Motion*
- Rochester Syracuse Probability Day, Rochester 1989: *Path Intersections and Non Intersections*
- Seminar on Stochastic Processes 1988, Gainesville Florida 1988: *Capacity for Multiparameter Markov Processes*
- Annual Winter Meeting of the Canadian Mathematical Society, Vancouver 1987. Special Session on Probability: *Capacity and Potential Theory for Several Markov Processes*
- 838th Meeting of the American Mathematical Society, Los Angeles 1987. Session on Stochastic Processes: *Pathologies of Conditioned Brownian Motion*
- 201st Meeting of the Institute of Mathematical Statistics, San Francisco 1987. Session on Markov Processes: *Conditioning a Pair of Markov Processes*
- Annual Winter Meeting of the Canadian Mathematical Society, Ottawa 1986. Special Session on Probability: *Connecting Brownian Paths*
- AMS IMS SIAM Joint Summer Research Conference in the Mathematical Sciences, on Time Reversal of Markov Processes and Potential Theory, Santa Cruz 1986: *Connecting Brownian Paths*
- Pacific Northwest Probability Meeting, Vancouver 1985: *An Increasing Diffusion*
- 817th meeting of the American Mathematical Society, Chicago 1985: Session on Stochastic Analysis and Related Topics. *An Increasing Diffusion*

Discussant:

- IFID Conference: Models for lifecycle finance, Insurance and Economics. Discussant for T. Kobayashi, *Human capital and asset allocation*, Fields Institute, October 8, 2010.
- IFID Conference on personal risk management. Discussant for K. Moore *Optimal asset allocation and ruin-minimization annuitization strategies: the fixed consumption case*, Fields Institute, April 28, 2004

COLLOQUIUM LECTURES

- University of New South Wales, Dept. of Statistics, Apr. 28, 2014
- University of Queensland, Mar. 17, 2014
- Ohio State University, Dec 1, 2011
- Ryerson University, Nov. 17, 2011
- University of Auckland, Dept. of Statistics, 2009
- Trent University, 2007
- University of Windsor, 2006
- McMaster University, 2004
- University of Waterloo, Dept. of Mathematics, 2000
- MSRI/University of California Berkeley Math Dept. "Evans Lecture", 1998
- Université Laval, 1995
- University of California Berkeley, Statistics Dept., 1994
- University of Guelph, 1993
- University of Western Ontario, Dept. of Mathematics, 1992

- University College Swansea, Dept. of Mathematics, Wales 1991
- University of Waterloo, Dept. of Statistics, 1991
- University of British Columbia, Dept. of Mathematics, 1989
- University of Toronto, Dept. of Statistics, 1987
- University of Rochester, Dept. of Mathematics, 1985
- University of Oregon, Dept. of Mathematics, 1985
- York University, Dept. of Mathematics, 1985
- The Ohio State University, Dept. of Mathematics, 1985

GRANTS

Recent funding:

- NSERC discovery grant (2010–2017): *Super Brownian motion, conditioning, finance*.
7 year grant: \$30,000 per year, Bin F (OVV)
- NSERC discovery grant (2005–2010): *Super Brownian motion, conditioning, finance*.
5 year grant: \$22,000 per year
- MITACS/Mprime project: *Finsurance* (2010–2012). \$140,000 per year. Project leader
[5 university project team: J. F. Angers, C. Dugas, J. Garrido, H. Huang, S. Jaimungal,
A. Kolkiewicz, H. Ku, A. Kuznetsov, S. Lin, M. Milevsky, M. Morales, K.S. Tan]
- MITACS/Mprime seed project: *Finsurance*(2008–2010): \$60,000 per year. Project leader.
[2 university project team: H. Huang, S. Jaimungal].

RECENT PROFESSIONAL SERVICE

- CMS Nominating committee chair (2015-2016)
- NSERC Evaluation group for Mathematics and Statistics (2012, 2013, 2015, 2016)
- Fields Institute Industrial Advisory Board
- Fields Institute, Keyfitz lecture steering committee
- NSERC Mathematics liaison committee (2005–2006, 2010–2012)
- SSC Awards committee (2012–2014)
- Ryerson Univ. Advisory council, Mathematical Finance program (since 2011)
- MITACS/Mprime Board of directors (2010–2011)
- NSF/DMS Committee of visitors (2010)
- IMS Committee on nominations (2008–2009)
- CRM comité scientifique consultatif (2006–2008)
- SIAM Activity Group on Financial Mathematics: Nominating committee (2010)
- IFID Secretary and Treasurer (2000–2008)

PUBLICATIONS

Books edited

- (1) *Numerical Methods and Stochastics* (with T.J. Lyons). Proceedings of a workshop held April 20–23, 1999. Fields Institute Communications **34**, AMS, Providence RI (2004)

Finance/Insurance papers

- (2) Hedging Guaranteed Lifetime Withdrawal Benefits with Stochastic Lapsation (with Y. Qiao). In preparation (2015)
- (3) Equitable retirement income tontines: mixing cohorts without discriminating (with M.A. Milevsky). Submitted (2015)

- (4) How long does the market think you will live? Implying longevity from annuity prices (with A. Chigodaev and M.A. Milevsky). To appear, *Journal of Investment Consulting* (2015)
- (5) Optimal Retirement Income Tontines (with M.A. Milevsky). *Insurance: Mathematics and Economics* **64** (2015), pp. 91–105.
- (6) Optimal Retirement Tontines for the 21st Century: With Reference to Mortality Derivatives in 1693 (with M.A. Milevsky). Refereed conference proceeding, *Proceedings of the Living to 100 Symposium*, Society of Actuaries, Orlando FL (2014)
- (7) Optimal initiation of a GLWB in a variable annuity: no arbitrage approach (with H. Huang and M.A. Milevsky). *Insurance: Mathematics and Economics* **56** (2014), pp. 102–111. [Working paper version ranked 15th on *Retirement Income Journal's* list of “The best retirement research of 2012”.]
- (8) Valuation and Hedging of the Ruin-Contingent Life Annuity (RCLA) (with H. Huang & M.A. Milevsky). *Journal of Risk and Insurance* **81** (2014), pp. 367–395
- (9) Optimal Retirement Consumption with a Stochastic Force of Mortality (with H. Huang & M.A. Milevsky). *Insurance: Mathematics and Economics* **51** (2012), pp. 282–291
- (10) A Different Perspective on Retirement Income Sustainability: The Blueprint for a Ruin Contingent Life Annuity (RCLA). With H. Huang & M.A. Milevsky. *J. of Wealth Management* **11** no. 4 (2009), pp. 89–96
- (11) Financial valuation of guaranteed minimum withdrawal benefits (with M.A. Milevsky). *Insurance: Mathematics and Economics* **38** (2006), pp. 21–38
- (12) Probabilistic investing: or how to win the Globe and Mails Stock Picking Contest (50% of the time). With M.A. Milevsky, *Financial Services Review* **14** (2005), pp. 197–211
- (13) Asset Allocation and the Liquidity Premium for Illiquid Annuities (with S. Browne and M.A. Milevsky). *Journal of Risk and Insurance* **70** (2003), pp. 509–526
- (14) The Real Option to lapse a variable annuity: can surrender charges complete the market? (with M.A. Milevsky). *Proc. XIth AFIR Colloquium* **2**, Can. Inst. of Actuaries (2001), pp. 537–561

Mathematics papers

- (15) Pathwise uniqueness for catalytic stochastic partial differential equations (with L. Mytnik). In preparation (2015)
- (16) Diameters of complementary domains for planar Brownian motion (with S. Nacu & Y. Peres). In preparation (2015)
- (17) Blowup and conditionings of ψ -super-Brownian exit measures (with S. Athreya). In preparation (2015)
- (18) Forward clusters for degenerate random environments (with M. Holmes). To appear, *Combinatorics, Probability and Computing* (2015)
- (19) Random walks in degenerate random environments (with M. Holmes). *Canadian Journal of Mathematics* **66** (2014), pp. 1050–1077.
Unpublished appendix: “Speed calculations for random walks in degenerate random environments”, arXiv:1304.7520 (2013).
- (20) Moment densities of super-Brownian motion, and a Harnack estimate for a class of X -harmonic functions (with A.D. Sezer). *Potential Analysis* **41**, No. 4 (2014), pp. 1347–1358
- (21) Degenerate random environments (with M. Holmes). *Random Structures and Algorithms* **45** (2014), pp. 111–137
- (22) Conditioning super-Brownian motion on its boundary statistics, and fragmentation. (with A.D. Sezer). *Annals of Probability* **41**, No. 5 (2013), pp. 3617–3657

- (23) Non-existence of stabilizing policies for the critical push-pull network and generalizations (with Y. Nazarathy & L. Rojas-Nandayapa). *Operations Research Letters* **41** (2013), pp. 265–270
- (24) A combinatorial result with applications to self-interacting random walks (with M. Holmes). *Journal of Combinatorial Theory A* **119** No. 2 (2012), pp. 460–475
- (25) Non-degenerate conditionings of the exit measure of super Brownian motion (with J. Verzani). *Stochastic Processes and their Applications* **87** (2000), pp. 25–52
- (26) On the conditioned exit measures of super Brownian motion (with J. Verzani). *Probability Theory and Related Fields* **115** (1999), pp. 237–285
- (27) On minimal parabolic functions and time-homogeneous parabolic h -transforms (with K. Burdzy). *Transactions of the AMS* **351** (1999), pp. 3499–3531
- (28) Hausdorff Capacity and Lebesgue Measure (with J. Steprans). *Real Analysis Exchange* **22** (1996/97), pp. 265–278
- (29) Energy, and Intersections of Markov Chains. In *Random Discrete Structures* (Aldous, Pemantle editors), IMA volumes in mathematics and its applications **76** (1996), pp. 213–225
- (30) Martin Boundaries of Sectorial Domains (with M.C. Cranston). *Arkiv för Matematik* **31** (1993), pp. 27–49
- (31) 2D Brownian Motion in a System of Traps: Application of Conformal Transformations (with K. Burdzy and R. Holyst). *Journal of Physics A* **25** (1992), pp. 2463–2471
- (32) A Low Intensity Maximum Principle for Bi Brownian Motion. *Illinois Journal of Mathematics* **36** (1992), pp.1–14
- (33) Capacity and Energy for Multiparameter Markov Processes (with P.J. Fitzsimmons). *Annales de l’Institut Henri Poincaré* **25** (1989), pp.325–350
- (34) Brownian Bitransforms. In *Seminar on Stochastic Processes 1987*, Birkhauser Boston (1988), pp. 249–263
- (35) Connecting Brownian Paths (with Burgess Davis). *Annals of Probability* **16** (1988), pp. 1428–1457
- (36) Three Problems from the Theory of Right Processes. *Annals of Probability* **15** (1987), pp. 263–267
- (37) An Increasing Diffusion. In *Seminar on Stochastic Processes 1984*, Birkhauser Boston (1986) pp. 173–194
- (38) Construction of Right Processes from Excursions. *Probability Theory and Related Fields* **73** (1986), pp. 351–367
- (39) On the Itô Excursion Process. *Probability Theory and Related Fields* **73** (1986), pp. 319–350
- (40) A Martin Boundary in the Plane. *Transactions of the American Mathematical Society* **293** (1986), pp. 623–642

Other publications

- (41) Retirement income planning roundtable (with E. Bederman, D. Conick, R. Norman, D. Richards). *Advisors Edge* **10** (supplement), April 2007.
Translated as: La planification du revenu de retraite. *Objectif Conseiller* **8** (supplement), May 2007
- (42) Asset Allocation and the Transition to Income: The Importance of Product Allocation in the Retirement Risk Zone (with M.A. Milevsky). IFID Working Paper (2006). Sponsored by Manulife Financial.
- (43) Report of the Ministers task force on senior high school mathematics (with B. Farahani, A. Ladouceur, M. Lemonde, H. Panju). Ontario Ministry of Education (2006)

- (44) How to win The Globe and Mail's One-and-Only contest (with M.A. Milevsky). The Globe and Mail, January 6, 2005
- (45) Review of *Multidimensional Brownian Excursions and Potential Theory*, by K. Burdzy, Pitman Res. Notes in Math. **164**, Longman Sci. and Technical, Essex New York. In Bulletin of the American Mathematical Society **21** (1989), pp. 152 157
- (46) Review of *Potential Theory: an Analytic and Probabilistic Approach to Balayage*, by J. Bliedtner and W. Hansen, Universitext series, Springer Verlag Berlin 1986. In Journal of the American Statistical Association **82** (1987), p. 1198
- (47) Construction of Strong Markov Processes from Excursions, and a Related Martin Boundary, PhD thesis, UBC (1983) – supervisor, John B. Walsh