

**CURRICULUM VITAE<sup>1</sup>**  
**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:* Professor Emeritus (since 2023), Full Professor (1994-2023), Assoc. Professor (1988–1993), Assist. Professor (1985–1988)

*Purdue University:* Research Assistant Professor (1983–1985)

*Visiting positions:*<sup>2</sup> Columbia Univ. (Nov 2018), UBC (Nov 2014), Fields Institute (1997–1999, Winter 2010), Institut Henri Poincaré & Université de Paris Sud (Fall 2009), Univ. of Auckland (Winter 2009 & 2014), MSRI (Jan 1998), Univ. of Edinburgh (Fall 1991), Univ. of California San Diego (1987–1988), Stanford Univ. (Summer 1986)

**HONOURS & SELECTED ACTIVITIES**

*Mathematics:*

- Graham Wright award for distinguished service, Canadian Mathematical Society (2015)
- President, Canadian Mathematical Society (2006–2008)
- Deputy Director, Fields Institute (2003–2006)
- Interim Deputy Director, Fields Institute (2019–2020)
- President, Probability Section, Statistical Society of Canada (2023–2024)
- Chair, York Department of Mathematics & Statistics (2000–2003)
- Fellow, Canadian Mathematical Society (since 2018)
- Fellow, Institute of Mathematical Statistics (since 2003)
- Fellow, Fields Institute (since 2002)

*Finance/Insurance:*

- Scientific Advisory Board, BroadRiver Asset Management, 2018–2023
- Director of Analytics, Quantitative Wealth Management Analytics (QWeMA) Group, 2005–2013
- Project leader, MITACS/Mprime insurance project (2008–2012)
- Ryerson Univ. Advisory council, Mathematical Finance program (2011–2015)

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<sup>1</sup>February 23, 2024

<sup>2</sup>one month or more.

- Principal organizer, Fields Institute seminar on quantitative finance (2003–2006)

*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 (2003–2020)

*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:*

- Fields-NRC-Ottawa Industrial problem solving workshop, Ottawa, May 28–Jun 1, 2018
- 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
  - Univ. of Virginia, March 2017
  - 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.
- 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:*

- Fields-China industrial problem solving workshop in Finance, May 8–12, 2017, Toronto
- 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)

*Other:*

- Fields-Ryerson industry-academic networking events: Blockchain Technology (Mar 21, 2017); AR/VR (Jun 21, 2017); Sports Analytics (Oct. 4, 2017); Smart cities (May 3, 2018)
- Fields Innovation day, Nov 21, 2017
- Fields-MaRS Innovation day, November 10, 2016.
- 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)
- 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)
- 1995 International Mathematical Olympiad, York University (1995): local org. committee

**STUDENTS & POSTDOCTORAL FELLOWS**

*Postdoctoral Supervision:*

- Arash Jamshidpey, 2018–2020 [PDF, Columbia University]

- Yevhen Mohylevskyy, 2014–2015 [Data Scientist, Microsoft]
- 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:*

- Snezhana Kirusheva (2017–2022, co-supervised with H. Huang):  
*Retirement spending problem under a habit formation model.*
- Branislav Nikolic (2015–2023):  
*Retirement Annuities: Optimization, Analysis and Machine Learning.*
- Bushra Ashraf (2015–2023):  
*Voluntary retirement and optimal consumption in a stochastic mortality environment.*
- Yang Fenghao (2013–2017, co-supervised with A. Kuznetsov):  
*On guaranteed minimum death benefits and first-to-default type problems.*
- 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*
  - Yi Wang (2023): Fixed Index Annuities and Registered Index Linked Annuities
  - Jeffrey Chang (2023):  
Numerical simulation study on Registered Index-Linked Annuities
  - Fenglin Shi (2021): Failure probabilities for cash-refund annuities
  - Omid Rezaia (2021): The digital copy of a neuron
  - Rong Gao (2020): The new retirement Tontine product with extra income
  - Abd-Erraouf Djirar (2019):  
Applications of generative adversarial networks in risk management
  - Liqing (Frank) Jing (2018):  
Pricing long-dated equity and FX derivatives with stochastic interest rates
  - Alexander Tam (2017): Risk allocation and regulatory capital
  - 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*
  - Jeffrey Chang – see “survey papers”
  - Fenglin Shi – see “survey papers”
  - Alexander Tam – see “survey papers”
  - Andy Koh (2015): 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 capacitary inequalities for Markov chain pairs: numerical analysis via simulated annealing

*DURA (Dean’s undergraduate research award) projects:*

- Daniel Park (2018): The critical probability for partially oriented percolation

*RAY (Research at York) summer research projects:*

- Arian Haghighparast (2023): The critical probability for phase transition in a degenerate random environment
- Kaveh Arabpour (2015): Variable tontine annuity

*Indicium undergraduate research projects:*

- Arian Haghighparast (2023): The critical probability for phase transition in a degenerate random environment

## MEDIA

- In: “So you’re saying there’s a chance: Just how slim are the Raptors’ odds of winning the NBA draft lottery?”, by Gilbert Ngabo, Toronto Star, May 16, 2023
- In: “The Raptors have a 7.5% chance of winning the NBA draft lottery. Here’s some examples of what else can happen with those odds”, by Cheyenne Bholla, Toronto Star, Jun 21, 2021
- In: “A new retirement product . . . with a catch”, by Ian McGugan, Globe & Mail, Jun 5, 2021
- *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:*

- CAIMS Annual meeting, Fredericton, Jun. 12-15, 2023. Plenary talk: *Tontines*.
- SSC Annual meeting, Ottawa, May 28–31, 2023. Session on New developments at the interface of finance and pension: *Regulatory constraints and the Riccati tontine*.
- Insurance: Mathematics and Economics, July 8, 2021.  
Session on Pensions and Annuities (co-presenter with M.A. Milevsky):  
*Refundable immediate annuities (IAs) & feasibility of money-back guarantees*
- CMS Winter meeting, Toronto, Dec 9, 2019. *Minicourse on Mathematical Finance*.
- Society of Actuaries Annual meeting, Toronto, Oct 27-30, 2019.  
Session on *Longevity Pooling and Tontines*. Co-presenters N. Blaha and F. Blaha
- Canadian Institute of Actuaries Annual meeting, Toronto, Jun 21-22, 2018.  
*Annuities vs. tontines in the 21st century: a Canadian case study*
- CAIMS Annual meeting, Toronto, Jun. 3-7, 2018. Session on Financial Mathematics:  
*Uncertain correlation and multivariate credit derivatives*
- CAFR Workshop on Mathematical Finance, SAIF Shanghai, May 14, 2018: *Uncertain correlation and credit derivatives*
- CMS Winter meeting, Niagara Falls, Dec 2-5, 2016.  
CMS/CAIMS plenary talk: *Uncertain longevity*
- 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*
- CMS Summer meeting, Edmonton, Jun 3, 2011.  
Session on Mathematical finance: *Optimal utilization of variable annuity guarantees*
- 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. Session talk.  
*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 l'actif*
- 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:*

- Letac-Massam Conference, Fields Institute, Apr 4-7, 2022. *Random walk in non-elliptic random environments.*
- CMS Summer meeting, on-line, Jun 7-11, 2021. Session on Applied probability & stochastic processes: *Random walk in degenerate random environments*
- 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. Session talk: *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. Lectures on *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*
- 924'th 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

- Ryerson University, Apr. 11, 2019; Nov. 17, 2011
- Microsoft Research Aug 24, 2016
- University of New South Wales, Dept. of Statistics, March 28, 2014
- University of Queensland, Mar. 17, 2014
- Ohio State University, Dec 1, 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 (2023–2028): *Actuarial finance, random walk in random environment, super Brownian motion*. 5 year grant: \$30,000 per year, Bin H (OSS)
- NSERC discovery grant (2017–2023): *Actuarial finance, random walk in random environment, super Brownian motion*. 5+1 year grant: \$37,000 per year, Bin E (OOV)
- Fields Institute research grant (2019–2020): 1 year grant, \$30,000 per year
- Fields Institute research grant (2016–2018): 2 year grant, \$15,000 per year
- Society of Actuaries grant (2016–2018): *Are Tontine Annuities Feasible in the 21st Century?*. 2 year grant, with M.A. Milevsky, \$7,000 USD 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]

## RECENT PROFESSIONAL SERVICE

- CMS Nominating committee chair (2015–2017)
- CMS Fellows selection committee (2021–2023)

- NSERC Evaluation group for Mathematics and Statistics (2012, 2013, 2015, 2016, 2024, 2025)
- NSERC Research tools and instruments:  
Computer, mathematical and statistical sciences selection committee (2019)
- IMS Committee on fellows (2021–2024)
- IMS Committee on nominations (2008–2009)
- Fields Institute Industrial Advisory Board (2004–2020)
- CQAM Research and Innovation Committee (2019)
- CAIMS-Fields Industrial Prize selection committee (2016–2017)
- NSERC Mathematics liaison committee (2005–2006, 2010–2012)
- SSC Awards committee (2012–2014)
- Ryerson Univ. Advisory council, Mathematical Finance program (2011–2015)
- MITACS/Mprime Board of directors (2010–2011)
- NSF/DMS Committee of visitors (2010)
- CRM comité scientifique consultatif (2006–2008)
- SIAM Activity Group on Financial Mathematics: Nominating committee (2010)
- IFID Secretary and Treasurer (2000–2008)

## PATENTS

*Annuity Analysis System* (with F. Habib and B. Nikolic)  
USA patent pending, filed November 2017

## 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) Uncertain correlation and multivariate credit derivatives (with Y. Fenghao and A. Kuznetsov). In preparation
- (3) The Riccati tontine: how to satisfy regulators on average (with M.A. Milevsky). Submitted
- (4) A greedy algorithm for habit formation under multiplicative utility (with S. Kirusheva). To appear, *International Journal of Theoretical and Applied Finance* (2024)
- (5) Retirement spending problem under habit formation model (with H. Huang and S. Kirusheva). In preparation
- (6) Refundable income annuities: feasibility of money-back guarantees (with M.A. Milevsky). *Insurance: Mathematics and Economics* **105** (2022), pp. 175–193.
- (7) Optimal allocation to deferred income annuities (with F. Habib, H. Huang, A. Mauskopf, and B. Nikolic). *Insurance: Mathematics and Economics* **90** (2020), pp. 94–104
- (8) Retirement spending and biological age (with H. Huang and M.A. Milevsky). *J. of Economic Dynamics & Control* **84** (2017), pp. 58–76
- (9) Equitable retirement income tontines: mixing cohorts without discriminating (with M.A. Milevsky). *Astin Bulletin* **46** (2016), pp. 571–604
- (10) The implied longevity curve: How long does the market think you are going to live? (with A. Chigodaev and M.A. Milevsky). *Journal of Investment Consulting* **17** (2016), pp. 11–21.
- (11) Optimal retirement income tontines (with M.A. Milevsky). *Insurance: Mathematics and Economics* **64** (2015), pp. 91–105.

- (12) 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)
- (13) 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”.]
- (14) 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
- (15) Optimal retirement consumption with a stochastic force of mortality (with H. Huang & M.A. Milevsky). *Insurance: Mathematics and Economics* **51** (2012), pp. 282–291
- (16) 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
- (17) Financial valuation of guaranteed minimum withdrawal benefits (with M.A. Milevsky). *Insurance: Mathematics and Economics* **38** (2006), pp. 21–38
- (18) Probabilistic investing: or how to win the Globe and Mail’s Stock Picking Contest (50% of the time). With M.A. Milevsky, *Financial Services Review* **14** (2005), pp. 197–211
- (19) 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
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