Curriculum Vitae

Mario Roy

Contact Information:

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Citizenship:	Canadian
Birthplace:	Québec, Canada
Languages spoken:	French, English, German, and basic Spanish

Degrees:

Ph.D.	Mathematics	University of Göttingen (Germany) Advisor: Manfred Denker	2000
M.Sc.	Mathematics	Université Laval (Québec, Canada) Advisor: Thomas J. Ransford	1997
B.Sc.	Physics	Université Laval	1995

Employment History:

2015–2016	Associate Principal, Academic, Glendon College
2013–2015	Associate Principal, Academic and Research, Glendon College
2009–	Associate Professor, Glendon College
2005–2009	Assistant Professor, Glendon College
2004–2005	Postdoctoral Fellow, Université Laval
2002–2004	Postdoctoral Fellow, Concordia University (Montréal, Canada)
2001–2002	Visiting Assistant Professor, University of North Texas (Denton, Texas, USA)

Scholarly and Professional Academic Activities:

Publications: (in mathematics, authors are ordered in alphabetical order, irrespective of their contribution)

Papers published in refereed journals: 15
Papers published in non-refereed conference proceedings: 1
Papers submitted to refereed journals: 1
Papers in preparation: 2
Books in preparation: 1

Papers published in refereed journals:

1. A. Ghenciu, D. Mauldin, M. Roy, "Conformal graph directed Markov systems: beyond finite irreducibility", to appear in *Journal of Fractal Geometry.*

2. A. Ghenciu, M. Roy, "Bowen's formula for shift-generated finite conformal recursive constructions", *Real Analysis Exchange*, **40** (**1**) (2015), 99–112.

3. A. Ghenciu, M. Roy, "Gibbs states for non-irreducible countable Markov shifts", *Fundamenta Mathematicae*, **221** (**3**) (2013), 231–265.

4. M. Roy, "A new variation of Bowen's formula for graph directed Markov systems", *Discrete and Continuous Dynamical Systems — Series A*, **32** (**7**) (2012), 2533–2551.

5. M. Roy, M. Urbański, "Random graph directed Markov systems", *Discrete and Continuous Dynamical Systems — Series A*, **30** (**1**) (2011), 261–298.

6. M. Roy, M. Urbański, "Multifractal analysis for conformal graph directed Markov systems", *Discrete and Continuous Dynamical Systems — Series A*, **25** (**2**) (2009), 627–650.

7. M. Roy, H. Sumi, and M. Urbański, "λ-topology vs. pointwise topology", *Ergodic Theory and Dynamical Systems* **29** (**2**) (2009), 685–713.

8. M. Roy, H. Sumi, and M. Urbański, "Analytic families of holomorphic iterated function systems", *Nonlinearity* **21** (2008), 2255–2279.

9. M. Roy, M. Urbański, "Real analyticity of Hausdorff dimension for higher dimensional hyperbolic graph directed Markov systems", *Mathematische Zeitschrift* **260** (**1**) (2008), 153–175.

10. D. Fiebig, M. Roy, "Factor theorems for locally compact Markov shifts II", *Forum Mathematicum* **18** (**2**) (2006), 323–344.

11. L. Baribeau, M. Roy, "Analytic multifunctions, holomorphic motions and Hausdorff dimension in IFSs", *Monatshefte für Mathematik* **147** (**3**) (2006), 199–217.

12. M. Roy, M. Urbański, "Regularity properties of Hausdorff dimension in infinite conformal IFSs", *Ergodic Theory and Dynamical Systems* **25** (**6**) (2005), 1961–1983.

13. M. Roy, "Is the composition of two expansive maps expansive?", *Topology and its Applications* **139** (**1**) (2004), 17–22.

14. M. Roy, M. Urbański, "Conformal families of measures for fibred systems", *Monatshefte für Mathematik* **140** (**2**) (2003), 135–145.

15. M. Roy, "Fibrewise expansive systems", *Topology and its Applications* **124** (**3**) (2002), 373–396.

Papers published in non-refereed conference proceedings:

1. M. Roy, "Les métriques riemanniennes et le théorème de Picard", *Proceedings of the Canadian Undergraduate Mathematics Conference* (1995), 45–49.

Papers submitted to refereed journals:

1. A. Ghenciu, S. Munday, M. Roy, "Hausdorff dimension spectrum of a graph directed system", submitted to *Journal of Number Theory*.

Papers in preparation:

1. M. Roy, M. Urbański, "Bowen's formula for random conformal graph directed Markov systems satisfying a transversality condition".
2. A. Ghenciu, M. Roy, "Entropy for boundedly supermultiplicative shifts".

Books in preparation:

1. S. Munday, M. Roy, M. Urbański, "Noninvertible Dynamical Systems".

Postgraduate theses:

1. "On Gibbs Families for Fibrewise Expansive Systems", Ph.D. thesis, University of Göttingen (2000).

   Advisor: Manfred Denker.

2. "La formule de Bowen", M.Sc. thesis, Université Laval (1997).

   Advisor: Thomas J. Ransford.

Training of Students:

As part of the NSERC Undergraduate Student Research Awards (USRA) Program, I trained Dominique Brunet, an undergraduate student at Université Laval, during the Summer of 2005. I familiarised Dominique with (finite and infinite) iterated function systems and various fractal dimensions.

After completing a master's degree at Université Laval, Dominique received an NSERC Ph.D. scholarship which he detained at the University of Waterloo. In 2012, he completed a Ph.D. on image processing using fractal geometry under the supervision of Edward R. Vrscay.

Seminar and Conference Presentations:

1. "Conformal Graph Directed Markov Systems: Recent Advances", *Conference on Logic, Dynamics and Their Interactions, with a Celebration of the Work of Dan Mauldin*, University of North Texas, June 8, 2012.

2. "Bowen's Formula for Shift-Controlled Finite Conformal Iterated Constructions", *RTG Logic and Dynamics Seminar*, University of North Texas, February 24, 2012.

3. "A Variation of Bowen's Formula for (Non-Necessarily Irreducible) Graph Directed Markov Systems", *Workshop Thermodynamic Formalism, Geometry and Stochastics*, Oberwolfach (Germany), January 4, 2012.

4. "Languages, Symbolic Dynamics and Coding in Disk Drives", *Conversazione*, Glendon, December 6, 2011.

5. "(Mis)Behavior of the pressure and Hausdorff dimension of the limit set of non-irreducible CGDMS", *Millikan Lecture Series*, University of North Texas, October 16, 2009.

6. "A Topology for Conformal IFSs", *Conference Dynamical Systems II*, University of North Texas, May 20, 2009.

7. "Behavior of Hausdorff dimension of limits sets of conformal IFSs", *Conformal Structure and Dynamical Systems*, *CODY Summer School — Program Dynamical Systems*, University of Göttingen, July 4, 2008.

8. "Analytic families of holomorphic IFSs", *Conformal Structure and Dynamical Systems, CODY Summer School — Program Towards Higher Dimensions*, University of Göttingen, June 23, 2008.

9. "Comportement de la dimension de Hausdorff chez diverses familles de systèmes itérés de fonctions", *Séminaire d'analyse*, Université Laval, October 26, 2007.

10. "Properties of Hausdorff dimension in families of conformal IFS", *Millikan Lecture Series*, University of North Texas, October 5, 2007.

11. "Properties of Hausdorff dimension in families of conformal IFS", *Workshop on Dynamical Systems and Ergodic Theory*, University of Göttin-gen, July 27, 2007.

12. "Properties of Hausdorff dimension in families of conformal IFS and GDMS", International Conference *Mathematics of Fractals*, University of Kyoto (Japan), September 5, 2006.

13. "Conformal iterated function systems", *Mathematics Seminar*, Trent University (Peterborough, Canada), March 31, 2006.

14. "Les groupes discrets", *Atelier de travail en analyse* (10-hour graduate lecture series), Université Laval, January–April 2005.

15. "Introduction aux systèmes dynamiques", *Séminaire sur les mathéma-tiques actuelles*, Université Laval, October 2004.

16. "On how potential theory sometimes pays back complex analysis", *Millican Lecture Series*, University of North Texas, December 2003.

17. "Breakdowns in the real-analyticity of the Hausdorff dimension of infinite IFSs", *Seminar of dynamics*, Concordia University, October 2003.

18. "Random iteration of rational functions", *Atelier de travail en analyse* (10-hour lecture series), Université Laval, April 2003.

19. "Eléments de preuve de la J-stabilité des familles analytiques de fonctions elliptiques hyperboliques", *Séminaire d'analyse*, Université Laval, September 2002.

20. "J-structural stability of the families of hyperbolic elliptic functions", *Séminaire de systèmes dynamiques*, Centre de Recherches en Mathéma-tiques (Montréal), September 2002.

21. "Is the composition of two expansive maps expansive?", *Summer Meeting of the Canadian Mathematical Society (CMS)*, Québec, June 2002.

22. "Families of Gibbs measures for fibred systems", *Seminar of dynamics*, Concordia University, June 2002.

23. "The structure of the Fatou set — Herman rings", *Complex Dynamics Reading Seminar*, University of North Texas, February 2002.

24. "Fibrewise expansive systems", *Dynamics and Analysis Seminar*, University of North Texas, October 2001.

Research Funding:

External:

NSERC discovery grant # 327304 for the project "Deterministic and random iterated function systems"	2006–2012 $9,000/year
(NSERC stands for "Natural Sciences and Engineering Research Council of Canada".)	
FQRNT postdoctoral research fellowship	2002–2004
(FQRNT stands for "Fonds Québécois de Recherche sur la Nature et les Technologies")	

Internal:

Glendon Research Grant	2011–2012 $1,500
Glendon Research Grant	2010–2011 $2,500
Glendon Research Grant	2005–2007 $2,000

Teaching at York University				
Academic Year	Term	Course	Credit Number	Title
2015–2016	Winter 2016	MATH 2680	3	Mathematics of Investment and Actuarial Science
	Fall 2015	MATH 2680	3	Mathematics of Investment and Actuarial Science
	Summer 2015	MATH 4230	6	Complex Analysis
2014–2015	Winter 2015	MATH 1940	3	Calculus II
	Fall 2014	MATH 1930	3	Calculus I
2013–2014	Winter 2014	MATH 2680	3	Mathematics of Investment and Actuarial Science
	Fall 2013	MATH 2680	3	Mathematics of Investment and Actuarial Science
	Summer 2013	MATH 4300	3	Directed Readings
2012–2013	Winter 2013	MATH 1940	3	Calculus II
	Fall 2012	MATH 1930	3	Calculus I
2011–2012	Winter 2012	MATH 1940	3	Calculus II
		MATH 2680	3	Mathematics of Investment and Actuarial Science
	Fall 2011	MATH 1930	3	Calculus I
		MATH 2680	3	Mathematics of Investment and Actuarial Science
2010–2011	Sabbatical	Leave		

Academic Year	Term	Course	Credit Number	Title
2009–2010	Winter 2010	MATH 4240	3	Analyse réelle
		MATH 2670	3	Second-Year Calculus
	Fall 2009	MATH 4240	3	Analyse réelle
		MATH 2670	3	Second-Year Calculus
2008–2009	Winter 2009	MATH 3400	3	Differential Equations
		MATH 2680	3	Mathematics of Investment and Actuarial Science
		MATH 2670	3	Second-Year Calculus
	Fall 2008	MATH 2680	3	Mathematics of Investment and Actuarial Science
		MATH 2670	3	Second-Year Calculus
2007–2008	Winter 2008	MATH 6002	3	Ergodic Theory (graduate reading course)
		MATH 2670	3	Second-Year Calculus
		MATH 1940	3	Calculus II
	Fall 2007	MATH 2670	3	Second-Year Calculus
		MATH 1930	3	Calculus I

Academic Year	Term	Course	Credit Number	Title
2006-2007	Winter 2007	MATH 6002	3	Iterated Function Systems (graduate reading course)
		MATH 4230	3	Analyse complexe
		MATH 1940	3	Calculus II
	Fall 2006	MATH 6340	3	Ordinary Differential Equations (graduate course)
		MATH 4230	3	Analyse complexe
		MATH 1930	3	Calculus I
2005–2006	Winter 2006	POLS 4100	3	Independent Study in Political Science (reading course in statistics)
		MATH 3400	3	Differential Equations
		MATH 1940	3	Calcul différentiel et intégral II
		MATH 1670	3	Fundamentals of Mathematics
	Fall 2005	MATH 3320	3	Principles of Mathematical Analysis
		MATH 1670	3	Fundamentals of Mathematics

Teaching at Université Laval				
Academic Year	Term	Course	Credit Number	Title
2004–2005	Fall 2004	MAT10363	3	Mathématiques de l'ingénieur

Teaching at Concordia University				
Academic Year	Term	Course	Credit Number	Title
2003–2004	Winter 2004	MAST 217	3	Introduction to Mathematical Thinking
	Fall 2003	MAST 232	3	Mathematics with Computer Algebra (Maple)
2002–2003	Winter 2003	MAST 232	3	Mathematics with Computer Algebra (Maple)
	Fall 2002	MAST 232	3	Mathematics with Computer Algebra (Maple)

Teaching at the University of North Texas				
Academic Year	Term	Course	Credit Number	Title
2001–2002	Winter 2002	MATH 1720	3	Calculus II (2 sections)
	Fall 2001	MATH 1720	3	Calculus II
		MATH 1710	3	Calculus I

Service

01/2014– In the absence of a Chair, I have administered the Department of English since January 1, 2014

2013–2015 Member of the Glendon Admissions Subcommittee

2013–2015 Glendon Senator on York University Senate

2013–2015 Member of APPRC (Academic Policy, Planning and Research Committee), one of York University Senate's committees

2013–2015 Member of the Joint Subcommittee on Quality Assurance Programs, York University

2013–2015 Member of three Organized Research Unit (ORU) Boards (CRLCC, IRIS and Robarts), York University

2013–2015 Member of the Adjudication Committee for the Research Development Fellowship Programme, York University

2013–2014 In the absence of a Director, I administered the MA in Études françaises and the PhD in Études francophones from November 2013 until July 1, 2014

2013–2014 In the absence of a Chair, I administered Glendon's Department of Multidisciplinary Studies during the entire academic year 2013-14

2013–2014 Member of the Hiring Committee for a Contractually Limited Appointment in Mathematics, Glendon

2013–2014 Member of the Glendon Principal Search Committee

2013–2014 Member of the NSERC Doctoral Scholarship Adjudication Files, York University

2013–2014 Member of the SSHRC Doctoral Scholarship Adjudication Files, York University

2012–2013 Guest of Honor for the Math-e-litics Competition (York Region)

2011–2013 Chair, Department of Mathematics, Glendon.

2011–2013 Member of the Curriculum Committee, Glendon.

2011–2012 Member of the Tenure and Promotion Review Committee, Glendon

2011–2012 Referee for two papers submitted to the *Journal of Mathematical Analysis and Applications* and the *Real Analysis Exchange*

2010–2011 Referee for five papers submitted to *Nonlinearity*, to *Ergodic Theory and Dynamical Systems* (2), to the *Bulletin of the Belgian Mathematical Society*, and to the *Indian Journal of Pure and Applied Mathematics*

Summer 2010 External examiner of the M.Sc. memoir written by Mr. Maxime Fortier Bourque from Université Laval

2006–2010 Vice-chair of Glendon Faculty Council

2009–2010 Member of the Principal's Advisory Committee on Campus Development, Glendon

2009–2010 Referee for a paper submitted to the Journal of Mathematical Analysis and Applications

2007–2010 Chair of the Academic Technology Advisory Committee (ATAC), Glendon

2006–2010 Member of the Board of Friends of Glendon, a charitable organization which helps Glendon students in financial need through the awarding of scholarships, bursaries and emergency loans

2009 Member of the Merit Pay Committee for the academic year 2008–2009, Glendon

2009 Member of the Web Management Committee, Glendon

2008–2009 Referee for a paper submitted to Annales Polonici Mathematici

2005–2009 Examiner for the Certificate of Bilingual Excellence, Glendon

2005–2008 Member of the Policy and Planning Committee, Glendon

2007–2008 Member of the Board of the Entrepreneurial Club, Glendon

2007–2008 Referee for two NSERC Discovery Grant applications

2007 Member of the Merit Pay Committee for the academic year 2006–2007, Glendon

2006 Member of the Adjudicating Committee for the tenure and promotion of Professor Alexander Nenashev (Mathematics Department), Glendon

2006 Member of the Adjudicating and File Preparation Committees for the tenure and promotion of Professor Vincent Hildebrand (Economics Department), Glendon

April 2005 Member of the jury, Undergraduate Mathematics Projects, Université Laval

Fall 2002 Co-organizer, Seminar on Dynamical Systems, CRM (Montréal, Canada)

April 2002 Member of the jury, 2002 Annual Integration Bee, University of North Texas

July 1999 Co-organizer, Conference on Dynamical Systems, University of Göttin-gen

July 1999 Organizer, Workshop on Fractal Geometry, University of Göttingen

Merit Awards

- I have received the 2011–2012 Principal's Teaching Excellence Award.
- I have been awarded a half-course release to conduct my NSERC funded research program for the academic years 2007–2008 and 2009–2010.
- I have been awarded a merit pay each year since I have been appointed at Glendon 8 years ago.

Additional Education in Finance

- Working knowledge of mathematical and financial concepts applied to portfolio management: I followed a graduate course on financial mathematics at the University of Göttingen in 2001, course treating of stochastic processes describing the price of non-dividend-paying stocks and derivative securities depending on such stocks.
- Theoretical and practical knowledge of a large variety of financial instruments: I took several finance courses at the John Molson School of Business (Concordia University) in 2003–2004 (for instance, Theory of Finance, Theory of Capital Markets, Options and Futures).
- I passed the Level I exam in the Chartered Financial Analyst (CFA) Program.

Computing

Knowledge of...

Languages: Pascal, Fortran, Visual Basic, C and C++.

Environments: UNIX, LINUX and Windows.

Softwares: MS Office, SAS, Latex, Mathematica and Maple.