Curriculum Vitæ

September 2014

http://www.mathstat.concordia.ca/faculty/bertola/

Contents

1 Personal

Citizenships: Italian, Canadian

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1.1 Employment history

Concordia University	**Full Professor** (tenured) at Concordia University (Montréal) from June 2013.
Concordia University	**Associate Professor** (tenured) at Concordia University (Montréal) from June 2007 to June 2013.
Concordia University	**Assistant Professor** (tenure-track) at Concordia University (Montréal) from August 2002 to May 2007.
Concordia University	**Research Professor** at Concordia University (Montréal) from January 2000 to April 2002, with teaching load of one or two undergraduate courses per term.

1.2 Academic background

CRM-ISM	**Postdoctoral fellowship** from October 1999 to April 2002 at the *Centre de recherches mathématiques (CRM)*, Université de Montréal.
SISSA, Trieste	October 1995, September 1999: Admission to the Ph.D. program in Mathematical Physics at SISSA–ISAS, in Trieste. **Ph.D. Thesis** defended on September 4, 1999 with the title "Jacobi groups, Jacobi Forms and their Applications", under the supervision of Prof. Boris Dubrovin.
University of Milan	22 March 1995: *Laurea* **(Degree) in Physics** with full marks and honors ("110/110 con Lode") Dissertation: *"Effetti termici della quantizzazione in uno spazio–tempo curvo"* (Thermal Effects of Quantization on curved spacetimes). Supervisors: Prof. V. Gorini, Dr. Mauro Zeni.

1.3 Awards

• Dean's Award for Distinguished Scholarship, Concordia University 2011.

1.4 Languages

1. **Italian** (mother tongue).
2. **English** (complete functionality in written and oral)
3. **French** (complete understanding of written, partial functionality in oral)
4. **Polish** rudiments.

2 Research

2.1 Publications

2.1.1 Published refereed papers

1. M. Bertola, M. Cafasso, "Darboux Transformations and Random Point Processes", *IMRN*, 2014, rnu122, 56 pages.
2. M. Bertola, M. Gekhtman, J. Szmigielski, "Cauchy–Laguerre Two-Matrix Model and the Meijer-G Random Point Field", Comm. Math. Phys. **326** (2014), no. 1, 111–144.
3. M. Bertola, A. Tovbis, "Universality for the focusing nonlinear Schrödinger equation at the gradient catastrophe point: rational breathers and poles of the *Tritronquée solution to Painlevé I* ", *Comm. Pure Appl. Math.* **66** *(2013) no.5, 678–752.*
4. *M. Bertola, M. Cafasso "The gap probabilities of the tacnode, Pearce and Airy point processes, their mutual relationship and evaluation", Rand. Matr. Th. Appl.* **02** *(2013), no 2, 13500003*
5. *M. Bertola, M. Gekhtman, J. Szmigielski, "Strong asymptotics for Cauchy biorthogonal polynomials with application to the Cauchy two-matrix model", J. Math. Phys.* **54**, *(2013) no 4, 043517, 25.*
6. *M. Bertola, R. Buckingham, S. Y. Lee, V. Pierce, "Spectra of random Hermitian matrices with a small-rank external source: the supercritical and subcritical regimes" J. Stat. Phys.* **153** *(2013), no. 4, 654–697.*
7. *"Inversion formulae for the $cosh$-weighted Hilbert transform" Proc. Amer. Math. Soc.* **141** *(2013) no. 8, 2703–2718.*
8. *M. Bertola, R. Buckingham, S. Y. Lee, V. Pierce, "Spectra of random Hermitian matrices with a small-rank external source; the critical and near-ciritcal regimes", J. Stat. Phys.* **146** *(2012), no. 3, 475–518.*
9. *bpoles M. Bertola, "On the location of poles for the Ablowitz-Segur family of solutions to the second Painlevé equation"*, Nonlinearity, **25** *(2012), no. 4, 1179–1185.*
10. *M. Bertola, M. Cafasso, "Riemann–Hilbert approach to multi-time processes: the Airy and the Pearcey cases"*, Physica D: Nonlinear Phenomena, *in press (2012), available online from Elsevier*
11. *M. Bertola, M. Cafasso, "Fredholm determinants and pole–free solutions to the noncommutative Painlevé II equation", Comm. Math. Phys.* **309** *(2012), no. 3, 793–833.*

12. *M. Bertola, "Boutroux curves with external field: equilibrium measures without a minimization problem",arXiv:0705.3062 (37 pages)*, Analysis and Mathematical Physics, **1**, *no. 2 (2011), 167–211.*
13. *M. Bertola, M. Cafasso, "The Transition between the Gap Probabilities from the Pearcey to the Airy Process: a Riemann–Hilbert Approach"*, IMRN, *2011, 1-50.*
14. *M. Bertola, A. Tovbis, "Universality in the Profile of the Semiclassical Limit Solutions to the Focusing Nonlinear Schrdinger Equation at the First Breaking Curve", Int. Math. Res. Notices., Advance Access published on December 15, 2009, rnp196*
15. *M. Bertola, M. Gekhtman, J. Szmigielski, "Cauchy Biorthogonal Polynomials", Journal of Approximation Theory* **162** *(2010), pp 832–867.*
16. *M. Bertola, S. Y. Lee, "First Colonization of a Hard-Edge in Random Matrix Theory", Constr. Approx.* **31** *(2010) no.2, 231–257.*
17. *M. Bertola, "The dependence on the monodromy data of the isomonodromic tau function"*, Comm. Math. Phys. **294** *, no. 2, (2010), pag 539–579.*
18. *M. Bertola, M. Gekhtman, J. Szmigielski, "Cubic String Boundary Value Problems and Cauchy Biorthogonal polynomials"*, J. Phys. A: Math. Theor. **42** *(2009) 454006, 13pp.*
19. *M. Bertola, A. Prats Ferrer, "Topological expansion for the Cauchy two–matrix model"*, J. Phys. A: Math. Theor. **42** *(2009) 335201.*
20. *M. Bertola, M. Gekhtman, J. Szmigielski, "The Cauchy two-matrix model", Comm. Math. Phys.* **287** *(2009), no. 3, 983– 1014.*
21. *M. Bertola, O. Marchal, " The partition function of the two–matrix model as an isomonodromic tau–function", J. Math. Phys.* **50** *(2009), no. 1, 013529, 17pp.*
22. *M. Bertola, S. Y. Lee, M. Y. Mo, "Mesoscopic colonization of a spectral band"*, J. Phys. A, **42**, *(2009), no. 41, 415204, 17pp.*
23. *M. Bertola, "Moment determinants as isomonodromic tau functions", Nonlinearity* **22** *(2009), no. 1, 29–50.*
24. *M. Bertola, M. Y. Mo, "Commuting difference operators, spinor bundles and the asymptotics of orthogonal polynomials with respect to varying complex weights", Adv. Math.* **22** *(2009), no. 1, 154–218.*
25. *F. Balogh, M. Bertola, " Regularity of a vector potential problem and its spectral curve", J. Approx. Theory.* **161** *(2009), no.1, 353–370.*
26. *M. Bertola, S. Y. Lee, "First colonization of a Spectral Outpost in Random Matrix Theory", Constr. Approx.* **30** *(2009) no. 2, 225–263 .*
27. *M. Bertola, A. Prats-Ferrer, "Harish-Chandra integrals as nilpotent integrals", International Mathematics Research Notices 20082008:rnn062-15*
28. *M. Bertola, M. Gekhtman, "Effective inverse spectral problem for rational Lax matrices and applications", arXiv:0705.0120, International Mathematical Research Notices (IMRN), 2007 Volume 2007: article ID rnm103, 39 pages.*
29. *M. Bertola, M. Gekhtman, "Biorthogonal Laurent polynomials, Toeplitz determinants, minimal Toda orbits and isomonodromic tau functions", Constr. Approx.* **26**, *no.3 (2007), 383–430.*
30. *M. Bertola, F. Corbetta, U. Moschella, "Massless scalar field in two–dimensional de Sitter universe", in* Rigorous Quantum Field Theory: a Festshrift for Jacques Bros, *Progress in Mathematics, Birkhäuser,* **251** *(2007), pag. 27–38.*
31. *M. Bertola, "Biorthogonal polynomials for 2–matrix models with semiclassical potentials", J. Approx. Theory.*

144, *no.2, (2007), 162–212.*

32. *M. Bertola, "Two matrix model with semiclassical potentials and extended Whitham hierarchy", J. Phys. A,* **28**, *(2006), 8823–8855.*
33. *M. Bertola, B. Eynard, "The PDEs of biorthogonal polynomials arising in the two–matrix model", Mathematical Physics, Analysis and Geometry,* **9** *(2006), no.1, pag. 23–52.*
34. *M. Bertola, B. Eynard, J. Harnad, "Semiclassical orthogonal polynomials, matrix models and isomonodromic tau functions", Commun. Math. Phys.* **263** *(2006) no.2, pag. 401–437.*
35. *M. Bertola, M. Y. Mo, "Isomonodromic deformation of resonant rational connections", International Mathematical Research Papers (IMRP) Volume 2005 (2005), Issue 11, pag. 565–635.*
36. *M. Bertola, "Free Energy of the two–matrix model/dToda tau–function", Nucl. Phys B* **669**, *no. 3 (2003), pag. 435–461*
37. *M. Bertola, B. Eynard, "Mixed Correlation Functions of the Two-Matrix Model" J.Phys. A* **36** *(2003), pag. 7733-7750*
38. *M. Bertola, B. Eynard, J. Harnad, "Duality, Biorthogonal Polynomials and Multi-Matrix Models" , Commun. Math. Phys.* **229** *(2002) 1, pag. 73-120.*
39. *M. Bertola, B. Eynard, J. Harnad, " Differential systems for biorthogonal polynomials appearing in 2-matrix models and the associated Riemann–Hilbert problem", Comm. Math. Phys.* **243** *(2003), no.2, pag. 193–240.*
40. *M. Bertola, "Second and third order observables of the two–matrix model", J. High Energy Phys.* **2003**, *no. 11, 062, 30pages. (electronic).*
41. *M. Bertola, B. Eynard, J. Harnad, "Partition functions for matrix models and isomonodromic tau functions" Random matrix theory. J. Phys. A* **36** *(2003), no. 12, 3067–3083.*
42. *M. Bertola, "Bilinear semiclassical moment functionals and their integral representation" J. Approx. Theory* **121** *(2003), no. 1, pag. 71–99.*
43. *M. Bertola, B. Eynard, J. Harnad, "The duality of spectral curves that arises in two–matrix models", Theor. Math. Phys.* **134** *(2003), no. 1, pag. 27–38.*
44. *H. De Guise, M. Bertola, "Coherent-state realization of su(n+1) on the n-torus", J. Math. Phys.* **43** *(2002), 7, pag. 3425–3444.*
45. *M. Bertola, D. Gouthier, "Lie Triple Systems and Warped Products", Rend. Mat. Appl. (7)* **21** *(2001), no. 1-4, pag. 275–293, Roma.*
46. *M. Bertola, D. Gouthier, "Warped products with special Riemannian curvature", Bol. Soc. Brasil. Mat. (N.S.)* **32** *(2001), no. 1, pag. 45–62.*
47. *M. Bertola, "Frobenius manifold structure on orbit space of Jacobi group; Part II", Differential Geom. Appl.* **13** *(3) (2000), pag. 213–233*
48. *M. Bertola, "Frobenius manifold structure on orbit space of Jacobi group; Part I", Differential Geom. Appl.* **13** *(2000), pag. 19–41.*
49. *M. Bertola, J. Bros, U. Moschella and R. Schaeffer, "A general construction of conformal field theories from scalar anti-de Sitter quantum field theories", Nuclear Phys. B* **587** *(2000), pag. 619–644.*
50. *M. Bertola, J. Bros, V. Gorini, U. Moschella, R. Schaeffer, "Decomposing Quantum Fields on Branes", Nuclear Phys. B* **581** *(2000), pag. 575-603.*
51. *M. Bertola, V. Gorini, U. Moschella, R. Schaeffer, "Correspondence between Minkowski and de Sitter Quantum Field Theory", Phys. Lett. B* **462** *(1999), pag. 249–253.*

2.1.2 Refereed proceedings

51. S.T. Ali, M. Bertola, "Symplectic geometry of the Wigner transform on noncompact symmetric spaces", Inst. Phys. Conf. Ser. No. 173: Section 7 (2003), pag. 847–854.

52. H. De Guise, M. Bertola, "Coherent-state realizations of $su(n+1)$ in terms of subgroup functions", Inst. Phys. Conf. Ser. No. 173, Section 7 (2003), pag. 523–526.

2.1.3 Nonrefereed Contributions

53. M. Bertola, "Jacobi Groups, Jacobi Forms and their Applications", in "Isomonodromic deformations and Applications in Physics", C.R.M. Proceedings & Lecture Note Series (2000) J. Harnad and A. Its ed., pag. 99–111.

54. Schaeffer, U. Moschella, Marco Bertola and Vittorio Gorini, "Generation of primordial fluctuation in curved spaces", Gravit. Cosmol., Vol. **4** (1998), No. 2 (14), pag. 121–127.

2.1.4 Published books

55. Special issue of *Journal of Physics A: Mathematical and General*, Vol. **39**, No. 38 (July 2006), special issue "Random matrices and integrable systems". Guest editors: M. Bertola, J. Harnad.

2.1.5 Conference organization

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1. Co-organizer of the workshop "Random Matrices, Inverse Spectral Methods and Asymptotics", E. Basor, M.B., B. Eynard, A. Its, K.T-R. McLaughlin, BIRS, Banff, Oct.10-15, 2008, Web-site link

2. Co-organizer of the workshop "Random matrices, related topics and applications", E. Basor, M.B., B. Eynard, A. Its, K.T-R. McLaughlin, CRM, Montréal, Aug. 25-30 2008, Web-site link.

3. "Short program on Moduli spaces of Riemann surfaces and related topics", M. Bertola and D. Korotkin org., Centre de recherche mathématiques, Montréal, June 4–15, 2007. Web-site link

2.2 Conference participation

Invited Lecturer: "XXXIX Summer School on Mathematical Physics", September 2014, Ravello (Italy). Six day course.

Speaker: XXXIII Workshop on Geometric Methods in Physics, Bialowieza (Poland), July 2014.

Speaker: "Spring Eastern Sectional Meeting, Baltimore, Maryland. Event: Novel Developments in Tomography and Applications", Baltimore, March 2014.

Invited Speaker at IAS, Princeton:"Workshop on Non-equilibrium Dynamics and Random Matrices", November 2013.

Invited Speaker:"Advanced School and Workshop on Random Matrices and Growth Models", ICTP, Trieste, September 2013.

Speaker:"The Eighth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena". Session on "Randomness in Integrable Systems", Athens, GA (USA), March 2013.

Invited speaker: "Aventures en Physique Mathèmathique", *Entretiens Jacques Cartier*, Lyon, November, 2012.

Invited participant: "Integrable systems, growth processes and KPZ universality", BIRS, Banff, September 2012.

Invited speaker: "Geometry, Integrability, Quantization", SISSA (Trieste), July 2012.

Participant: XXXI WGMP, Bialowieza, Poland, June 2012.

Invited speaker: "Integrable Systems", Olsztyn (Poland), June 2012

Participant: "Strong asymptotics for Cauchy Biorthogonal polynomials", Research in Teams program, BIRS, June 2012.

Invited speaker: "Integrable systems and Random Matrices in honor to Sasha Its", May 21-23, 2012

Invited speaker: "Contemporary ways of integrability", Lisbon, May 16-18, 2012.

Invited Participant: AIM workshop on "Vector equilibrium problems and their applications to random matrix models", Palo Alto, April 2012.

Invited minicourse lecturer: École de Physique des Houches, "Random Matrices & Integrable systems", 3hour minicourse, March 2012.

Invited speaker: Institut Herni Poincaré, Paris, "GranMa 2011", October 2011.

Invited speaker: Banach Center Conference, "Formal and Analytic Solutions of Differential and Difference Equations", August 2011.

Invited speaker: Euler Insitute St. Petersburg, International Conference "Painevé equations and related topics", June 2011.

Invited Visitor: Korean Institute of Advanced Studies (KIAS), Dec. 11-18 2010, host: Dr. Davide Guzzetti. Minicourse on: The Riemann Hilbert approach to the asymptotic study of orthogonal polynomials and related problems.

Invited Speaker: ISM Winter School 2011 (Jan 2011).

Invited Speaker: Integrable and stochastic Laplacian growth in modern mathematical physics, B.I.R.S., October 2010.

Speaker: SIAM Conference on Nonlinear Waves and Coherent Structures: invited spaked in the minisymposia "Nonlinear Waves in Integrable Stystems" and "Recenta Advances in Nonlinear Integrable Systems", August 2010.

Speaker: XXIX Workshop on Geometric Methods in Physics, June 27 - July 3 2010, Bialowieza (PL).

Invited Speaker June 7-12, 2010 Integrable Systems in Pure and Applied Mathematics, Alghero, Italy.

Colloquium speaker February 21-28, 2010, Colloquium at the Dept. of Math. University of Central Florida.

Speaker October 24-25, 2009, AMS sectional meeting, University Park.

Speaker June 28–July 4, 2009, XXVIII Workshop on geometric methods in physics, Bialowieza, Poland.

Invited speaker June 15–20, 2009, Co-Sponsored School on Integrable Systems and Scientific Computing, ICTP, Trieste, Italy

Invited speaker March 23–26, 2009, Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, session on "Asymptotics of Nonlinear Waves and Related Problems", University of Georgia, Athens (GA).

Plenary speaker October 14–18 2008, "ENIGMA Conference on Integrable Systems, Geometry, Matrix Models and Applications" 08, SISSA (Trieste, Italy), org. B. Dubrovin, T. Grava, L-P. Mertens.

Invited speaker March 2008, Orlando, SIAM-SEAS 2008, special session on "Integrable Equations, Their Special Limits and Riemann–Hilbert Problem Approach", org. A. Tovbis, S. Venakides.

Invited speaker September 2008, Brussels, "Random and integrable models in mathematics and physics", P. Bueken, M. Henneaux, P. van Moerbeke, P. Vanhaecke org.. Talk: "Cubic strings, Cauchy-biorthogonal polynomials and multi-matrix models".

Invited speaker August 2007, Vienna, TUW, Equadiff 2007, session on Integrable Systems, S. Kamvissis and J. Michor org.; talk "Boutroux curves with external potential: equilibrium measures without a minimization problem"

Invited speaker October 2006, Luminy, CIRM,"Luminy conference on random matrices", A. Kuijlaars and M. Ledoux org.; talk "Constructing equilibrium curves for complex potentials using flat paper and metric glue",

Invited speaker April 2006, AMS Sectional Meeting in Notre–Dame (IN), Special session on Algebraic Structures of Exactly Solvable Models, Org. M. Gekhtman, M. Shapiro, A. Stolin, delivered presentation on "Semi-classical biorthogonal polynomials: the bilinear concomitant and the duality between Riemann–Hilbert problems as intersection pairing. ".

Invited speaker July 2005, Montréal, CRM short Program series: "Random Matrices, stochastic processes and integrable systems", J. Harnad, J. Hurtubise org. : "Two matrix models and biorthogonal polynomials 2. Differential equations, finite N spectral curve and duality," and "Toeplitz determinants, minimal Toda orbits and isomonodromic tau functions".

Invited speaker October 2004, Orlando, SIAM Conference on Nonlinear Waves and Coherent Structures, Workshop on Random Matrix Theory, P. Miller, J. Baik org., "Mixed correlation functions of the Two-Matrix Model".

Invited speaker July 2004, Paris, Rigorous Quantum Field Theory, D. Buchholz, D. Iagolnitzer, U. Moschella org., "Massless QFT on Two-dimensional De Sitter Space-Time".

Invited speaker March 2004, Banff, Orthogonal Polynomials: interdisciplinary aspects,J. Szmigielski (Saskatchewan), P. Deift (Courant), L. Littlejohn (Utah State), D. Sattinger (Utah State) org., "Random Matrices and Isomonodromic Tau functions".

Invited speaker March 2004, Les Houches (France), Random Geometry: theory and Applications, F. David P. di Francesco, B. Eynard org., talk "Generalized one-matrix models and Isomonodromic tau function".

Invited talk at Atelier sur les limites grand N de la théorie de jauge U(N) en physique et en mathématiques, Pavel Bleher (IUPUI), Vladimir Kazakov (ole Normale) et Steve Zelditch (Johns Hopkins) org., "Tau Function of the Dispersionless Toda Hierarchy and planar limit of the Free Energy of the Hermitean Two-Matrix Model".

Invited talk, "Frobenius manifolds, quantum cohomology, and singularities", July 2002, organizers B. Dubrovin, C. Hertling, Yu. Manin, M. Marcolli, K. Saito, MPI, Bonn: invited talk on "Invariant algebra of Jacobi groups, relation with current algebras on elliptic curves and (multiple) flat structures".

Talk, XXI Workshop on Geometric Methods in Physics- Recent Developments in Quantization, June-July 2002, Bialowieza, Poland. Talk on "Wigner transform on noncompact (rank one) symmetric space".

Invited talk, "Random Matrix Theory and Combinatorics", June 2002, organizer P. Deift, Courant Institute, NY. Invited talk on "Duality of Differential Equations arising in the Two-Matrix Model and associated Riemann-Hilbert problem".

Invited talk, AMS meeting on Asymptotics for Random Matrix Models and Their Applications, III, May 2002, CRM, UdeM, organizers N. M. Ercolani, K. T.-R. McLaughlin: invited talk on "Stokes Matrices and Riemann-Hilbert Problem for two-matrix models."

3 External Funding

1. (Principal applicant) FQRNT Projet de rechreche en équipe, "Matrices Aléatoires, Processus Stochastiques et Systèmes Intégrables ",J. Harnad (Concordia), B. Marco (Concordia), B. Eynard (CEA, Saclay, France), J. Hurtubise (McGill), D. Korotkin (Concordia): 53k per annum (2011–2014) plus $ 8550 equipment. The amount is equally divided amongst the participants
2. (Principal and only applicant) NSERC Discovery grant, 36500 CDN per annum, 2011-2016, "Rigorous approaches to universality results in Random Matrix Theory, Integrable Systems and nonlinear Integrable wave equations".
3. (Principal and only applicant) NSERC Discovery grant, 17784 CDN per annum, 2006-2011, "Exact and asymptotic methods in Random Matrix Theory and Integrable Systems".

4. FQRNT Projet de rechreche en équipe, "Théorie spectrale des matrices aléatoires et des déformation isomonodromiques" , J. Harnad (Concordia), B. Marco (Concordia), B. Eynard (CEA, Saclay, France), J. Hurtubise (McGill), D. Korotkin (Concordia): 45k per annum (2006–2009) plus 15930$ equipment. The amount is equally divided amongst the participants.
5. (Principal and only applicant) NSERC Discovery grant no. 261229-03, 15000 CDN per annum, 2003-2006, "Random Matrices, Semiclassical Asymptotics and Integrable Systems" .
6. (Principal and only applicant) FCAR grant. 88353, 15000 CDN per annum, 2003-2006, "La transformée de Wigner, états cohérents et théorie quantique des champs sur espaces symétriques" (see referee reports in the Service Dossier).
7. FCAR collaborative grant 88582,"Développements en géométrie symplectique et applications à la physique mathématique": one eighth of 50000 CDN (2004), 44500 CDN (2005), 44500 CDN (2006).

3.1 Students' supervision

- Yulia Klochko: PhD. thesis on "Genus one polyhedral surfaces, spaces of quadratic differentials on tori and determinants of Laplacians", successfully defended on May 4 2009.
- Eva Rifkah: MsC. co-supervision, "Anisotropic Diffusion: Derivations and Parameter Adaptation for Image Noise Reduction", 2009.
- Manuela Girotti; thesis on "Riemann-Hilbert approach to Gap Probabilities of Determinantal Point Processes", defended Auguts 2014.

3.2 Support of Post-Doctoral Fellows

- Dr. Thomas Bothner, 10kp.a. 2013 to date.
- Dr. Fedor Soloviev, 4k, 2014
- Dr. Eungyun Lee, NSERC, 10k p.a., 2012 to date.
- Dr. M. Cafasso, NSERC/CRM-ISM: 9k p.a., 2009–2011.
- Dr. Seung Yeop Lee, NSERC/CRM-ISM: 5k p.a., 2007–2009.
- Dr. Aleix Prats-Ferrer, FQRNT: 8k p.a., 2007–2010.
- Dr. Iana Anguelova CRM-ISM PDF: 10k for 2006–2007.
- Dr. Andrew McIntyre CRM-ISM PDF: 3k for 2005–2006 and 3k for 2006–2007.
- Dr. Mo Man Yue (CRM-ISM PDF: 4k for 2004–2005 and 10k for 2005–2006
- Dr. Gabor Pusztai (Concordia-CRM PDF : 4k) for 2003-2005

4 Service

4.1 Committee membership

1. Comité d'évaluation Bourses Postdoctorales du concours 2012-2013 FQRNT.
2. Comité d'évaluation Bourses Postdoctorales du concours 2011-2012 FQRNT.
3. Comité d'évaluation Bourses Postdoctorales du concours 2010-2011 FQRNT.
4. Comité Nouveaux chercheurs, FQRNT (2006).

4.2 Thesis commitee

1. **Committee member**: Manuela Girotti, PhD, 2014 (Concordia): supervisor Prof. M. Bertola.
2. **Committee member**: Shahab Azarfar, MsC, 2014 (Concordia): supervisor Prof. D. Korotkin.
3. **Committee member**: Nurisia M. Shah, PhD, 2014 (Concordia): supervisor Prof. S.T. Ali.
4. **Committee member**: Upal Syed Chowdhury, PhD, 2013 (Concordia): supervisor Prof. S.T. Ali.
5. **External to the program** committee member: M. Wong, PhD. 2010 (Concordia): supervisor Prol. A. Sebak.
6. **External** examiner, Benoit Huard, PhD. 2010 (U. de M.): supervisor Prof. M. Grundland.
7. **Committee member**: F. Balogh, PhD. 2009 (Concordia): supervisor Prof. J. Harnad.
8. **External to the program** committee member: M. Fortin-Boisvert, PhD. May 2008 (McGill): supervisor Prof. N. Kamran.
9. **External to the program** committee member: P. Poulin, PhD. 2006 (McGill): supervisor Prof. V. Jaksic.

4.3 Internal

1. Honours Advisor, 2013 onwards.
2. Concordia Graduate Awards Committee A, 2012-2015.
3. Chair of PhD. defenses: Y Zhao (Economincs, Aug 2011), L Pattison (History, Aug 2011)
4. Putnam Coach: 2002 to date.
5. Department Personnel Committee 2009 to date.
6. Course coordinator Math 202, 2011
7. Mathematics Hiring Committee 2010.

8. Course coordinator Math 364, 2009.
9. Course coordinator Engr 213 2004-2006.