

CURRICULUM VITAE

Ionel POPESCU

Addresses

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Educatie

Massachusetts Institute of Technology, 2000-2004
Ph.D. in Pure Mathematics, June 2004
Thesis title: *Morse Inequalities, a Probabilistic Approach*
Advisor: Daniel W. Stroock
University of Bucharest, Romania, 1997-1998
Master in Mathematics, June 1998.
University of Bucharest, Romania, 1992-1997
Bachelor of Science in Mathematics, June 1997.

Positions

- Associate Professor, 2014-present, Faculty of Mathematics and Informatics
 - Associate Researcher, 2014 - present, Institute of Mathematics of Romanian Academy
 - Scientific Researcher III, 2006 - present, Institute of Mathematics of Romanian Academy
 - Research Assistant, 1997 - 2006, Institute of Mathematics of Romanian Academy
 - Associate Professor, 2016-Present, Georgia Institute of Technology,
 - Assistant Professor, 2007- 2016, Georgia Institute of Technology,
 - Boas Assistant Professor, 2004 - 2007, Northwestern University,
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Fields of Interest

Stochastic Analysis, Functional Analysis, Differential Geometry, Random Matrices, Free Probability.

Grants

- Simons Foundation travel grant 2014-2019 - \$35000
 - European Union - Marie Curie grant (IRG) - *Stochastic Analysis, Mass Transportation and Free Probability*, 2010-2013, €100000
 - UEFISCDI - Romanian Young Researchers - *Randomness, Geometric Problems and Functional Inequalities*, 2011-2014, approximately \$300000. This is a team grant I am managing.
 - UEFISCDI - Exploratory Workshop - *Probability and Related Aspects*, May 2012, Alba Iulia, Romania. I was the co-PI and the co-organizer of the workshop.
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Publications

- Free Functional Inequalities on the Circle (pending revisions) accepted in *Advances in Mathematics*
- Non-normal limiting distribution for optimal alignment scores of strings in binary alphabets - with Henry Matzinger (pending revisions) accepted in *Journal of Statistical Physics*
- Couplings of Brownian Motions of deterministic distance on the model spaces of constant curvature - with Mihai Pascu accepted in *Journal of Theoretical Probability*
- Upper bound for the rate of convergence of a second functional in optimal alignment - with Raphael Hause and Henry Matzinger - to appear in *Bernoulli*
- Shy and Fixed-Distance Coupling on Riemannian Manifolds - with Mihai N. Pascu - *Stochastic Processes and their Applications* - Volume **126**, Issue 2, February 2016, Pages 628–650
- Refinements of the One Dimensional Free Poincaré Inequality - with Christian Houdré - *International Mathematics Research Notices*, Issue 17, 2015, pp. 8116–8151
- A refinement of Brascamp-Lieb-Poincaré inequality in one dimension - *Comptes Rendus Mathématique* volume **352**, no. 1, January 2014, pp. 55–58
- A Stochastic Target Approach to Ricci Flow on Surfaces - with Robert W. Neel - *Annals of Probability*, volume **44**, no. 2, Feb 2016, pp. 1341–1425
- The One Dimensional Free Poincaré Inequality - with Michel Ledoux - *Transaction of AMS* volume **365**, 2013, pp. 4811–4849
- Analyticity of Planar Limits of a Matrix Model - with Stavros Garoufalidis - *Annales Henri Poincaré* volume **14**, no. 3, April 2013, pp. 499–565
- Toeplitz algebras arising from actions of \mathbb{N}^r - with Iulian Popescu - *Revue Romaine de Mathématique pure et Appliquées* - **55**, no. 3, 2010, pp. 205–240
- Mass Transportation Proofs of Free Functional Inequalities, and Free Poincaré Inequalities - with Michel Ledoux - *Journal of Functional Analysis* volume **257**, no. 4, 2009, pp. 1175–1221
- General Tridiagonal Random Matrix Models, Limiting Distributions and Fluctuations - *Probability Theory and Related Fields*, volume **144**, issue 1-2, May 2009, pp. 179–220
- Talagrand Inequality for the Semicircular Law and Energy of the Eigenvalues of Beta Ensembles - *Mathematical Research Letters*, volume **14**, issue 6, November 2007, pp. 1023–1032
- Morse Inequalities, a Function Space Integral Approach - *Journal of Functional Analysis* **235**, no. 1, 2006, 1–68,

In Progress

- From Girsanov to Gradient Estimates - with Elton Hsu
- A Sharp Asymptotic Freeness Result and Random Matrices with Dependencies
- Concentration of Mass in One Dimensional Free Probability - with Michel Ledoux
- Brownian Motion on Manifolds and Morse Theory

Invited Conference Talks

- French-Romanian Colloquium, Iași, 25-29 August 2016, <http://www.math.uaic.ro/cfr2016/index.php?invited>

- Stochastic analysis and applications, Braşov, July 25-26, 2016 http://cs.unitbv.ro/~pascu/PCCE_SAA2016_speakers.php
- Probabilistic and Analytic tools in Convexity, AMS, March 5-6, Athens Georgia, 2016, http://www.ams.org/meetings/sectional/2237_program_ss2.html
- Miniworkshop in free probability, Tokyo, July 13-17, 2015, (confirmation via email)
- New Trends in Stochastic Analysis, Kyoto, July 6-10, 2015 http://www.kurims.kyoto-u.ac.jp/~kenkyubu/proj2015/program_NTSA.pdf
- New developments in Optimal Transport, Geometry and Analysis, Bonn, Feb 24th, 2015, <https://www.him.uni-bonn.de/en/programs/past-programs/past-junior-trimester-optimal-transportation/winter-school-workshop-new-developments-in-optimal-transport-geo-schedule/>
- Stochastic Analysis and Applications, Bucharest, Dec. 17th, 2014, <https://sites.google.com/site/ciprianatudor/conference>
- ProbaGeo 2014 at Bordeaux, June 10-12, 2014 http://www.math.u-bordeaux1.fr/~marnaud/publis/ProbaGeo_juin2014_programme.pdf
- High Dimensional Probability VII, Cargese, May 26-31, 2014 <http://hdpvii.gatech.edu/speakers>
- Sectional AMS meeting, Albuquerque, April 5-6, 2014 http://www.ams.org/meetings/sectional/2215_program_ss20.html#title
- ProbaGeo 2013 at Luxembourg, Oct 28-31, 2013, University of Luxembourg http://math.uni.lu/thalmaier/ANR_LUX/program.html
- 150 years anniversary of University of Bucharest, Aug. 30 - Sept. 1, 2013, Bucharest, Romania <http://fmi.unibuc.ro/FMI-150/files/program-probabilitati.pdf>
- AMS-RMS, Probability and Other Related Fields, June 27-30 2013, Alba Iulia, Romania <http://imar.ro/ams-ro2013/talks.html>
- Stochastic Differential Geometry, May 29-31 2013, Rennes, France <http://www.lebesgue.fr/content/sem2013-WS4-en>
- Heat Kernels, Stochastic Processes and Functional Inequalities, 5-11 May, Oberwolfach Germany, <http://www.ems-ph.org/journals/abstract/OWR/2013-010-002/2013-010-002-08.pdf>
- The 13th Romanian-Finnish Seminar, June 26-30, 2012, Ploieşti, Romania <http://imar.ro/RoFinSem2012/conf.php>
- Probability and Related Aspects, Alba Iulia, Romania, May 22-26, 2012 <http://www.imar.ro/ProbAlbaIulia2012/conf.php>
- New Trends in Modern Analysis, Probabilistic and Analytic Methods in PDEs and Spectral Theory November 20-24, 2011, Hammamet, Tunisia <http://www.imar.ro/organization/activities/standalone/conf-Tunisia/conf.php>
- 5th International Conference on Stochastic Analysis and its Applications September 5-9, 2011, Bonn, Germany http://icsaa.iam.uni-bonn.de/schedule_friday.html
- Congress of Romanian Mathematicians, June 29 - July 5, 2011, Brasov, Romania http://www.imar.ro/organization/activities/standalone/congmatro2011/past_events/program.pdf
- Mini Conference on Probability and Related Fields, May 23-24, 2011, Bucharest, Romania <http://www.imar.ro/~purice/conferences/2011/ProbAndRelated.pdf>

- Workshop for Young Researchers in Mathematics May 12-13, 2011, Constanta, Romania <http://math.univ-ovidius.ro/Workshop/2011/WYRM/speakers.htm>
- The Fourth Annual Meeting of the European Non Commutative Geometry Network April 25-30, 2011, Bucharest, Romania <http://www.imar.ro/~purice/conferences/2011/EUNCG4/Titluri.html>
- Conference on Random Matrices, June 1-4, 2010, Paris http://www.cmapx.polytechnique.fr/~benaych/conference/page_conference_may31-june4.html/Paris_6_%26_ANR_GranMa.html and http://www.cmapx.polytechnique.fr/~benaych/slides_conf_2010/
- Probability & Geometry in High Dimensions, May 17-21, 2010, Paris <http://perso-math.univ-mlv.fr/users/banach/workshop2010>
- Workshop on Asymptotic Analysis and Stochastic Methods for Heterogeneous Media, June 9-13, 2010, Alba Iulia, Romania
- CMS/AMS Winter Session - Ottawa - December 5-8, 2008 http://cms.math.ca/Events/winter08/sessions_scientific
- Infinite Dimensional Probability - Luminy, May 22-27, 2008 http://www.cirm.univ-mrs.fr/index.html/spip.php?rubrique2&EX=info_rencontre&annee=2008&id_renc=276&lang=fr
- Workshop on Random Matrices, Bonn, January 11-18, 2008 <http://www.him.uni-bonn.de/en/programs/past-programs/past-trimester-programs/complex-stochastic-systems-workshop-4b-random-matrices-probabilistic-aspects-and-applications/schedule/>
- International Workshop on "Free Probabilities, Operator Spaces and von Neumann Algebras", Sibiu, Romania, June 9-16, 2007 <http://www.imar.ro/~purice/conferences/Sibiu-NCG/PREZENTARI/T.html>
- 6th Operator Algebras International Conference, Bucharest, August 2005 <http://wolfweb.unr.edu/homepage/ramazan/OAMP3/program.htm>
- Joint meeting AMS-DMS-ÖMG, June 13-18, 2005, Mainz, Germany <http://www.math.tugraz.at/~woess/mainz2005/>
- AMS Meeting, October 23-24, 2004 at Northwestern University in Evanston, Illinois http://e-math.ams.org/meetings/sectional/2113_program_ss3.html#title
- Analytic and Geometric Aspects of Stochastic Processes, Banff Research Center, April 10 - 15, 2004

Coloquium Talks

- Monthly Lecture, IMAR, Friday, October 18, 2013,
- Colocviul LEA Math-Mode, November 28-29, 2011, Bucharest, Romania
- IMAR, Bucharest, April 2010
- IMAR, Bucharest, July, 2009
- University of Connecticut, February 2007
- McGill University, February 2007
- Georgia Institute of Technology, February 2007
- Notre Dame University, January 2007

Seminar Talks

- Probability Seminar, MIT, April 3rd, 2017
- Stochastic Seminar, Georgia Tech, Sept. 5th, 2013
- Geometry Seminar, IMAR, May 20th, 27th and June 3rd, 2013
- Stochastic Seminar, Bonn University, June 9th, 2013

- Analysis Seminar, Northwestern University, Dec 9th, 2012
- Stochastic Seminar, Georgia Tech, September 27th, 2012
- Probability Seminar, Lehigh Univ, September 20th, 2012
- Stochastic Seminar, Georgia Tech, April 19th, 2012
- Probability Seminar, Purdue University, April 3rd 2012
- Felix Klein Seminar, Notre Dame University, March 1st, 2012
- Analysis Seminar, Northwestern University, February 20th, 2012
- Analysis Seminar, Constanta, November 11th 2011
- Probability Seminar, Toulouse University, May, 2010
- Probability Seminar, MIT, November 9th, 2009;
- Free Probability Seminar, Texas AM Oct. 6th, 2009
- Probability Seminar, Colorado Boulder, Sept. 10th 2009
- Probability Seminar, MIT, May 5th, 2009
- Stochastic Seminar, Georgia Tech, October 9, 2008
- Special Seminar, Toulouse, June 26, 2008
- Stochastic Seminar, Georgia Tech, September 27, 2007
- Probability Seminar, Columbia University, February 9, 2007
- Probability and Statistics Seminar, Institute for Applied Math., University of Bonn, June 11, 2005
- Analysis and Probability Seminar, Northwestern University, October 18, 2004
- Analysis and Probability Seminar, Northwestern University, January 29, 2004
- Analysis Seminar, Northeastern University, Boston, January 12, 2004
- Analysis Seminar, MIT, November 26, 2003
- Institut für Angewandte Mathematik, Heidelberg, Spring 1998
- Operator Algebras Seminar, Institute of Mathematics of Romanian Academy, Series of Lectures on "Free Probability Theory", Fall 1998

Invited Visits

- Toulouse University, June 2008, May 2010, Oct 2011
- Penn State University, Fall 1999
- Institut für Angewandte Mathematik, Heidelberg, March-May 1998
- "Operator Algebra Workshop", Geneva, September 1997

Fellowships and Awards

- Romanian Academy Award for contributions to "Free and Non-Commutative Probability" - 2011
- CURRY fellowship, The Pennsylvania State University, Fall 1999
- TEMPUS fellowship, Heidelberg, Germany, Spring 1998
- First place in Romanian National Olympiad, 1991

Professional Activities

Reviewer for:

- Annals of Statistics
- Bernoulli
- Electronic Journal of Probability
- Extremes
- Journal of Fourier Analysis and Applications
- Journal of Operator Theory

Winter 2005 - Math330-2
- Math214-2
Fall 2004 - Math214-1
- Math214-3

Introduction to Probability and Stochastic Processes
Calculus II
Calculus I
Calculus III
