

# Curriculum Vitae of Alexandru Nica

## Contact:

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## Education:

- University of California, Berkeley, 1990-94. Degree: Ph.D. in Mathematics, with specialization in Operator Algebras (May 1994); thesis advisor: Dan-Virgil Voiculescu.
- University of Bucharest, Romania, 1981-86. Degrees: Bachelor (June 1985), and Master of Science (June 1986).

## Awards:

- Mathematics Faculty Fellowship, May 2004 – April 2007.
- The University of Waterloo Mathematics Society “Instructor of the Year” award for 2001–2002.
- Premier’s Research Excellence Award (Province of Ontario), 2001-2006.
- Israel Halperin Prize, June 2000.
- Canada International Fellowship, January 1995 – July 1996.
- The Regents of the University of California Fellowship, 1993-94.
- National Fellowship, Romania, 1985-86.

## Research interests:

- Non-commutative probability and Operator algebras, particularly their connections to combinatorics, classical probability, and mathematical physics. My current line of research is in free probability.

## Scientific positions:

- Position in the Pure Mathematics Department of the University of Waterloo: Assistant Professor from July 1997 to June 2001; Associate Professor from July 2001 to June 2005; Professor from July 2005 to present.
- Member of the Mathematical Sciences Research Institute in Berkeley, California, January – June 2001.
- Visiting scholar at the Henri Poincaré Institute, Paris, France, September – December 1999.
- T.H. Hildebrandt Research Assistant Professor in the Department of Mathematics of the University of Michigan, Ann Arbor, September – December 1994 and January 1996 – June 1997.
- Visiting scholar at the Queen’s University, Kingston (September-December 1995, May-July 1996), and at the Fields Institute, Waterloo (January-August 1995), while holding a Canada International Fellowship.

- Visiting scholar at the Centre des Recherches Mathématiques, Montréal, January – May 1991.
- Visiting scholar at Université Paris 7, France, May – June 1990.
- Researcher at the Mathematics Institute of the Romanian Academy (former IN-CREST), 1986-90.

### **Organization of meetings:**

- I organized a special session on Free Probability of the Winter Meeting of the Canadian Mathematical Society in Toronto, December 8–10, 2001.
- Together with Roland Speicher (Queen’s University), I organized a Fields Institute workshop on Free Probability and Random Matrices in Toronto, December 6–7, 2001.
- Together with Ken Davidson, Laurent Marcoux and Nico Spronk, I organized the 32nd annual Canadian Operator Symposium (Waterloo, May 19-23, 2004).
- Together with Roland Speicher (Queen’s University) and Dan Voiculescu (U. California at Berkeley), I organized a 5-day workshop on Free Probability at the Banff International Research Station (October 9-14, 2004).
- Together with Jon McCammond (U. California at Santa Barbara) and Vic Reiner (U. Minnesota) I organized a 5-day workshop on Braid Groups, Clusters and Free Probability at the American Institute of Mathematics in Palo Alto, California (January 10-14, 2005).
- I was the meeting director for the Summer 2005 Meeting of the Canadian Mathematical Society (Waterloo, June 4-6, 2005).
- Together with Roland Speicher (Queen’s University), Antonia Tulino (University of Sannio, Italy) and Dan Voiculescu (U. California at Berkeley), I organized a 5-day workshop on Free Probability, Extensions and Applications at the Banff International Research Station (January 14-18, 2008).

### **Supervision of graduate students and of postdoctoral fellows:**

#### *A. Master’s students.*

- Mario Grgic, MMath degree awarded in 2000. MMath thesis on “Brown spectral measures for elements of finite von Neumann algebras”.
- Michael Neagu, MMath degree awarded in 2000. MMath thesis on “The combinatorics of free probability theory with an application to operator norms”.
- Matthew Tucker, MMath degree awarded in 2005. MMath thesis on “Subfactors, knots, and the Temperley-Lieb algebra”.

#### *B. Doctoral students.*

- Michael Neagu, PhD degree awarded in 2006. PhD thesis on “The asymptotic freeness phenomenon for random permutation matrices with restricted cycle lengths”.

– Ion Oancea, PhD degree awarded in 2008. PhD thesis on “Posets of non-crossing partitions of type B and applications”.

*C. Postdoctoral fellows.*

- Peter Friis, 1999-2001 (co-supervised with Ken Davidson).
- Jiankui Li, 2001-2003 (co-supervised with Ken Davidson).
- Herbert Lee, 2002-2004.
- Serban Belinschi, 2005-2008.
- Mitja Mastnak, 2007-2008 (co-supervised with Heydar Radjavi).

**Grants held in support of my research:**

*A. Grants held as principal investigator*

– Research Grant from the National Science Foundation of the USA, for the proposal “Models and linearization for freeness in operator algebras”.

Amount: US\$ 21,000, for the period 1996-1997.

– Startup Grant from the Mathematics Faculty of the University of Waterloo.

Amount: \$ 15,000, for the period 1997-1998.

– Research Grant from NSERC, for the proposal “Combinatorial techniques in free probability”. Amount: \$ 18,000 per year for the period 1998-2001.

– ORDCF Matching Grant. Amount: \$ 7,600, for the period 1999-2000.

– Research Grant from NSERC, for the proposal “Combinatorial and analytical aspects of free probability”. Amount: \$ 25,000 per year for the period 2001-2005.

– Premier’s Research Excellence Award, \$ 150,000 for the period 2001-2006.

– Discovery Grant from NSERC, for the proposal “Combinatorial aspects of free probability and random matrix theory”. Amount: \$ 28,000 per year for the period 2005-2010.

*B. Grants held as co-applicant*

– CFI New Opportunities Grant. Amount: \$ 58,200, awarded in October 1998.

This grant was awarded to a group of 11 new faculty members of the Mathematics Faculty at Waterloo, for the purchase of a Sun Ultra 450 server.

– Leadership Support Initiative Grant. Amount: \$ 40,000 per year, for the period 2003-2007.

This grant was awarded to a research group in non-commutative probability consisting of J. Mingo (Queen’s), M. Neufang (Carleton), R. Speicher (Queen’s, principal investigator) and myself.

**Selected talks in meetings and seminars, in the last few years:**

– 40 minute talk in the 12th workshop on Noncommutative Harmonic Analysis at Bedlewo, Poland, August 2009.

– 90 minute talk in Random Matrix seminar at Université Paul Sabatier, Toulouse, France, March 2009.

- 50 minute talk in Free Probability seminar at Texas A&M University, February 2009.
- 25 minute talk in Operator Algebras special session of the Winter 2008 CMS Meeting, Ottawa, December 2008.
- Colloquium talk at Saint Mary’s University, Halifax, November 2008.
- Two talks of 90 minutes each in Probabilistic Operator Algebra Seminar at University of California, Berkeley, November 2008.
- Colloquium talk at University of Saskatchewan, Saskatoon, October 2008.
- 50 minute talk at workshop on Free Probability, Extensions and Applications at the Banff International Research Station, January 2008.
- 50 minute talk at workshop on Free Probability, Random Matrices and Planar Algebras at the Fields Institute, September 2007.
- Series of 4 lectures of 1 hour each, on the combinatorics of free probability, during Free Probability Concentration Week at Texas A&M, July 2007.
- 45 minute talk at workshop on Free Probabilities, Operator Spaces and von Neumann Algebras in Sibiu, Romania, June 2007.
- 50 minute talk at the 35th Canadian Operator Theory Symposium, University of Guelph, June 2007.
- 45 minute talk at meeting on Free Probability and the Large  $N$  Limit, Berkeley, March 2007.
- 50 minute talk in special session on Probabilistic Methods in Analysis and Algebra at the Winter 2006 CMS Meeting, Toronto, December 2006.
- 50 minute talk at workshop on Free Analysis at the American Institute of Mathematics in Palo Alto, California, June 2006.
- 50 minute talk at the 26th Great Plains Operator Theory Symposium, University of Iowa, May 2006.
- 1 hour talk in the Michigan Combinatorics Seminar, Ann Arbor, October 2005.
- 2-hour survey lecture on the combinatorics of free probability at workshop on Braid Groups, Clusters and Free Probability at the American Institute of Mathematics in Palo Alto, California, January 2005.
- 45 minute talk in conference on Free Probability and Non-commutative  $L^p$ -Spaces at the Texas A&M University, August 2004.
- 1 hour talk in Operator Algebra Seminar at the Henri Poincaré Institute, Paris, France, April 2004.