

# Michał Kotowski

## PERSONAL DATA

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Date of Birth: 18 December 1987  
Citizenship: Polish  
E-mail: [michal.kotowski@mimuw.edu.pl](mailto:michal.kotowski@mimuw.edu.pl)  
WWW: <http://www.mimuw.edu.pl/~mk249019/>

## ACADEMIC INTERESTS

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– **discrete probability, geometric group theory, spectral graph theory**  
including random walks on groups, random permutations, random groups, property (T)

## EMPLOYMENT

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2018 – research assistant at the [Faculty of Mathematics, Informatics, and Mechanics, University of Warsaw](#)  
2017 – 2018 postdoctoral position in the [Concentration of Measure](#) project at the [Faculty of Mathematics, Informatics, and Mechanics, University of Warsaw](#)  
2016 – 2017 [WCMCS](#) postdoctoral position at the [Faculty of Mathematics, Informatics, and Mechanics, University of Warsaw](#)

## EDUCATION

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2013 – 2016 PhD in mathematics, [Department of Mathematics, University of Toronto](#)  
advisor: [Bálint Virág](#)  
2006 – 2011 M. Sc. in Mathematics at the [University of Warsaw](#)  
[Faculty of Mathematics, Informatics and Mechanics](#)  
studied mathematics, physics and computer science in an interdisciplinary program at [College Of Inter-Faculty Individual Studies In Mathematics and Natural Sciences](#)  
advisor: [Piotr Przytycki](#)

## PUBLICATIONS

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2015 *Non-Liouville groups with return probability exponent at most  $1/2$* , Michał Kotowski, Bálint Virág, [arxiv:1408.6895](#), Electron. Commun. Probab. 20 (2015), no. 12, 12.  
2013 *Random groups and Property (T): Żuk's theorem revisited*, Marcin Kotowski, Michał Kotowski, [arXiv:1106.2242](#), J. London Math. Soc. (2013) 88 (2): 396-416  
2012 *Tight Bell inequalities with no quantum violation from qubit unextendible product bases*, Remigiusz Augusiak, Tobias Fritz, Marcin Kotowski, Michał Kotowski, Marcin Pawłowski, Maciej Lewenstein, Antonio Acín, [arXiv:1112.3238](#), Phys. Rev. A 85, 042113  
2010 *Universal nonlinear entanglement witnesses*, Marcin Kotowski, Michał Kotowski, Marek Kuś, [arXiv:1003.0210](#), Phys. Rev. A 81, 062318

## PREPRINTS

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- 2018 *A note on concentration for polynomials in the Ising model*, Radosław Adamczak, Michał Kotowski, Bartłomiej Polaczyk, Michał Strzelecki, [arxiv:1809.03187](https://arxiv.org/abs/1809.03187), preprint
- 2018 *Phase transition for the interchange and quantum Heisenberg models on the Hamming graph*, Radosław Adamczak, Michał Kotowski, Piotr Miłoś, [arxiv:1808.08902](https://arxiv.org/abs/1808.08902), preprint

## IN PREPARATION

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- 2016 *Limits of random permuton processes and large deviations for the interchange process*, Michał Kotowski, Bálint Virág, [preliminary version](#)

## LONGER RESEARCH VISITS

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- January-July 2015 research stay at Alfréd Rényi Institute of Mathematics, Budapest
- March-August 2014 research stay at Alfréd Rényi Institute of Mathematics, Budapest
- February 2014 one month at [IHP trimester on random walks and asymptotic geometry of groups](#) at IHP, Paris

## INVITED SEMINAR TALKS

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- June 2018 *Phase transition for the interchange and quantum Heisenberg models on the Hamming graph*, University of Warsaw, Probability Seminar
- March 2017 *Limits of random permuton processes and large deviations for the interchange process*, University of Warsaw, Probability Seminar
- December 2016 *Limits of random permuton processes and large deviations for the interchange process*, Alfréd Rényi Institute of Mathematics, Budapest
- September 2016 *Limits of random permuton processes and large deviations for the interchange process*, MIT Mathematics Department, Probability Seminar
- February 2015 *Non-Liouville groups with return probability exponent at most  $1/2$* , Budapest University of Technology and Economics, Stochastics Seminar
- January 2015 *Non-Liouville groups with return probability exponent at most  $1/2$* , University of Warsaw, Geometric Group Theory Seminar
- November 2014 *Non-Liouville groups with return probability exponent at most  $1/2$* , McGill University, Geometric Group Theory Seminar
- September 2014 *Non-Liouville groups with return probability exponent at most  $1/2$* , University of Toronto, Probability Seminar
- November 2012 *Random groups and property (T)*, University of Toronto, Probability Seminar
- September 2012 *Random groups and property (T)*, Budapest University of Technology and Economics, Stochastics Seminar

## EXPOSITORY AND POPULAR ARTICLES

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- 2014 *Kafelkowanie prostokątów i grafy planarne*, M. Kotowski, M. Kotowski, [Delta 10/2014](#) ("Rectangle tilings and planar graphs", in Polish)
- 2013 *Hipoteza Kakeyi*, M. Kotowski, M. Kotowski, [Delta 04/2013](#) ("Kakeya conjecture", in Polish)
- 2010 *Jak wyznaczyć liczbę pi za pomocą zderzeń*, M. Kotowski, M. Kotowski, [Delta 10/2010](#) ("How to determine  $\pi$  using collisions", in Polish)

## TEACHING EXPERIENCE

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- Mathematical Analysis I.1, I.2, 2016-2017, Faculty of Mathematics, Informatics, and Mechanics, University of Warsaw (tutorials)
- Graduate Probability I and II, 2015-2016, Department of Mathematics, University of Toronto
- various undergraduate courses at University of Toronto (Calculus, Partial Differential Equations, Ordinary Differential Equations), 2013-2016

## EDUCATIONAL ACTIVITIES

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- 2013 Visitor at [Canada/USA Mathcamp](#), an intensive summer program for mathematically talented high school students; taught course on Combinatorics of Partitions
- 2009 – Volunteering for [Polish Children's Fund](#) as a tutor at scientific workshops for gifted high school students; taught courses in combinatorics and probability
- 2007 – 2015 Co-organizer of [Summer Scientific School](#), aimed at exceptional high-school students interested in mathematics, computer science and physics; taught courses in combinatorics and probability

## OTHER ACTIVITIES

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- May 2013 coorganized [Geometric Group Theory Student Workshop](#) in Będlewo
- 2012 – 2014 coorganizing a [Probability, Geometry and Groups](#) seminar at the University of Toronto
- April 2012 taught a [short course](#) on spectral graph theory and expanders at the University of Warsaw
- 2010 – 2011 coorganizing a [student seminar of Mathematics Students Association](#) in analysis, geometry and probability (University of Warsaw)  
topics covered: convex geometry, probability on groups, spectral graph theory
- 2010 – 2011 Member of [Polish Mathematical Olympiad's](#) Warsaw regional comitee,
- 2006 – 2011 member of the [Physics Students Club](#) of the University of Warsaw (SKFiz UW)
- 2006 – 2011 member of the [Mathematics Students Association](#) of the University of Warsaw (KPM UW), vice-president since 2009

## WORKSHOPS AND CONFERENCES ATTENDED

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July 2017	Summer school on “Spectral properties of large random objects”, IHES
September 2016	Amenability of discrete groups, AIM
June 2015	Groups, Graphs and Stochastic Processes, Banff
April 2015	Asymptotic Invariants of Groups, Oxford
June 2014	Graph limits, groups and stochastic processes, Budapest
March 2014	Asymptotic properties of groups, IHP, Paris
February 2014	Groups Acting on Rooted Trees and Around, IHP, Paris
January 2014	Random Walks on Groups, IHP, Paris
December 2013	Neo-Classical Methods in Discrete Analysis, Simons Institute, Berkeley
May 2013	Geometric Group Theory Student Workshop, Będlewo
June 2012	Conference on Graphs and Analysis, Princeton
December 2011	Quantitative Geometry in Computer Science, MSRI, Berkeley
June 2011	Modern Graph Theory with Applications to Geometric Group Theory, Będlewo
April 2011	Spring School on „Limits of finite graphs”, Leipzig
October 2010	International Conference on Quantum Information and Quantum Computation, Stockholm
May 2010	Spring School in Dynamical Systems 2010, Będlewo
April 2010	9th Student Physics Conference, Brenna
September 2009	summer scientific school of Mathematics’ Students Association of the University of Warsaw, Małe Ciche k. Zakopanego
July 2009	Geometric Group Theory, Będlewo
September 2008	summer school „Physics and Tatry” in mathematical physics, Małe Ciche k. Zakopanego
September 2007	10th International Workshops for Young Mathematicians – Combinatorics, Kraków

## AWARDS AND SCHOLARSHIPS

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2013 – 2016	Connaught International Scholarship for Doctoral Students (University of Toronto)
2011	2nd prize in the Polish Mathematical Society competition for the best student paper
2010	Scholarship of the Minister of Science and Higher Education for exceptional achievements in science
2007 – 2011	Scholarship for academic achievements (University of Warsaw)

## OTHER SKILLS

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- languages: Polish (native), English (fluent)
- scientific computing software (Mathematica, Matlab/Octave)
- programming (written code in C/C++, Java, Python, Bash, Pascal, Smalltalk, x86 assembler, PHP, PL/SQL)