

CURRICULUM VITAE

Masha Vlasenko

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Born: December 25, 1979 — Kyiv
Nationality: Ukrainian

Current position

Adiunkt (assistant professor), Department of Algebra and Algebraic Geometry
Institute of Mathematics of the Polish Academy of Sciences

Areas of specialization

Number Theory

Previous positions

- 2004-2005 *Research fellow*, Institute of Mathematics, Kyiv
- 2005-2006 *Postdoctoral research fellow*, Max Planck Institute for Mathematics, Bonn
- 2007-2008 *Postdoctoral research fellow*, Institut des Hautes Études Scientifiques, Bures-sur-Yvette
- 2008-2009 *Postdoctoral research fellow*, Max Planck Institute for Mathematics, Bonn
- 2009-2011 *Research fellow*, Max Planck Institute for Mathematics, Bonn
- 2011-2013 *Lecturer*, Trinity College Dublin
- 2013-2015 *Lecturer*, University College Dublin

Education

- 2001 MSc in Applied Mathematics, National Technical University of Ukraine
- 2005 PhD in Mathematics, Institute of Mathematics, National Academy of Sciences of Ukraine

Awards

- 1992-1996 Winner of Ukrainian National Mathematics Competition for Young Mathematicians
1996 Grant from Soros Foundation Educational Program
1998-1999 Winner of Ukrainian National Mathematics Competition for University Students
2007-2009 Stipendium of the European Post-Doctoral Institute for Mathematical Sciences
2017-2020 Grant from the National Science Centre of Poland (UMO-2016/21/B/ST1/03084)

Publications

- 2000 Trigonometric series with uniformly distributed coefficients, **Ukrainian Math. J.** 52 (2000), no.6, 876–885
2001 Non-Ito stochastic differentials and quadratic variation of corresponding anticipating integral, **Theor. Stoch. Proc.** 7 (2001), no. 3-4, 118–130
2002 Equations with random Gaussian operators with an unbounded mean, **Ukrainian Math. J.** 54 (2002), no. 2, 207–217
2004a On the growth of an algebra generated by a system of projections with fixed angles, **Methods Funct. Anal. Topology**, v.10 (2004), no. 1, 98–104
2004b (with N. Popova) On configurations of subspaces of the Hilbert space with fixed angles between them, **Ukrainian Math. J.** 56 (2004), no. 5, 730–740
2004c Description of the center of certain quotients of the Temperley-Lieb algebra of type \tilde{A}_N , **Algebra Discrete Math.** 2004, no. 3, 144–156
2005a Visitation measures for some sequences of random variables with decreasing coefficients, **Theory Probab. Appl.** 49 (2005), no. 1, 176–186
2005b (with A. Mellit and Yu. Samoilenko) On algebras generated by linearly connected generators with a given spectrum, **Funct. Anal. Appl.** 39 (2005), no. 3, 175–186
2006 The graded ring of quantum theta functions for noncommutative torus with real multiplication, **Int. Math. Res. Not.** 2006, 1–19
2011 (with S. Zwegers) Nahm’s conjecture: asymptotic computations and counterexamples, **Communications in Number Theory and Physics** 5 (2011), 617–642
2012 (with K. Hutchinson) Lines crossing a tetrahedron and the Bloch group, in *Contributions to Algebraic Geometry*, IMPANGA lecture notes, **EMS Series of Congress Reports**, 297 – 304
2013a (with D. Zagier) Higher Kronecker “limit” formulas for real quadratic fields, **Journal für die Reine und Angewandte Mathematik** 679 (2013), 23–64
2013b (with A. Holroyd, K.Mahlburg and K.Bringmann) k -run overpartitions and mock theta functions, **Quarterly Journal of Mathematics** 64 (2013), 1009–1021
2014 (with E. Shinder) Linear Mahler measures and double L-values of modular forms, **Journal of Number Theory** 142 (2014), 149–182
2015 (with V. Golyshev) Equations D3 and spectral elliptic curves, in *Feynman Amplitudes, Periods and Motives*, **Contemporary Mathematics** 648 (2015), 135–152
2016 (with A. Mellit) Dwork’s congruences for the constant terms of powers of a Laurent polynomial, **International Journal of Number Theory**, Vol. 12, no. 2 (2016) 313–321

- 2017a Formal groups and congruences, accepted by **Transactions of the AMS**
 2017b On p -adic unit-root formulas, in Proceedings of the program “Hypergeometric motives and Calabi–Yau differential equations” held at the MATRIX research institute in January 8–28, 2017 (see <https://www.matrix-inst.org.au/2017-matrix-annals/>)

Invited speaker

- 2010 K-Theory, Quadratic Forms and Number Theory Seminar, University College Dublin
 2011 Seminar on Algebra, Geometry and Physics, MPIM Bonn
 Explicit methods in number theory, Oberwolfach
 2012 Modular forms, mock theta functions, and applications, University of Cologne
 K-Theory, Quadratic Forms and Number Theory Seminar, University College Dublin
 Hypergeometric series and their generalizations, IHP Paris
 Irish Geometry Conference, University College Cork
 Periods and motives: a modern perspective on renormalization, ICMAT Madrid
 Galois representations and pencils of Calabi-Yau motives, MPIM Bonn
 2013 27th Automorphic Forms Workshop, University College Dublin
 Arctic Number Theory Workshop, Saariselkä
 Special functions and special numbers, Utrecht University
 Explicit methods in number theory, Oberwolfach
 2014 Dublin Area Mathematics Colloquium
 L-functions and modular forms, ICTP Trieste
 Number Theory Seminar, University of Warwick
 2015 Recurrences and L-values seminar, MPIM Bonn
 Regulators, Mahler measures, and special values of L-functions, CRM Montréal
 Explicit methods in number theory, Oberwolfach
 Algebra Seminar, Institute of Mathematics, Kyiv
 SFB-Kolloquium, Mainz
 2016 Geometry Seminar, University of Gdansk
 Moduli and automorphic forms, HU Berlin
 Algebra, geometry and arithmetic seminar, UAM Poznan
 Automata, algebraicity and G-functions workshop, Porquerolles
 2017 Number Theory Seminar, Université Lyon 1
 Arithmetic geometry seminar, ENS de Lyon
 p -adic cohomology and arithmetic applications, Banff
 IMANGA, Warsaw

Organizer

- 2002-2013 International Mathematics Competition for University Students
 2014 Irish Intervarsity mathematics contest
 L-functions and modular forms, school and workshop at ICTP Trieste
 2017 Hypergeometric motives and Calabi–Yau differential equations, a program at the

MATRIX Research Institute at Melbourne

2018 Varieties: Arithmetic and Transformations, a Simons semester at the Banach Center in Warsaw

Teaching

Short lecture courses and expository talks

2006 Lectures on complex multiplication, Institute of Mathematics, Kyiv
2011 Introduction to modular forms, ICTP, Trieste
2012 Apéry's constant and other geometric numbers: towards understanding the motivic Galois group, University College Dublin
Internal geometry of surfaces, Trinity College Dublin
2013 Binomial Coefficients and p -adic Continuity, University College Dublin
2014 p -adic cohomology and counting points on varieties over finite fields, ICTP, Trieste

Lecture courses

2011-2013 Multivariable calculus for science, Trinity College Dublin
2011-2013 Introduction to number theory, Trinity College Dublin
2012 Introduction to modular forms, Trinity College Dublin
2013 Lebesgue integral, Trinity College Dublin
2013-2014 Multivariable calculus, University College Dublin
2014-2015 Linear algebra, University College Dublin
2014 Modular forms of one variable (graduate course), University College Dublin

Advising undergraduate research projects

2012 Una Eilis Ni Eigeartaigh, Ramified coverings of the Riemann sphere
Aran Nolan, Pádraig Condon and Ewan Dalby, Extremal Laurent polynomials in two dimensions
Jack Kelly, Modular parametrisation of families of elliptic curves
Eoin Ó Murchadha, Generalizing Menelaus' theorem to algebraic curves
2013 David Mulligan, Weil conjectures for elliptic curves
Jack Kelly, Algebraic hypergeometric functions
Adam Keilthy, Owen Ward and Jack Geary, Integral ratios of factorials
2014 Ewan Dalby, Congruences for the coefficients of modular forms
2015 Seán Mac Dhonnagáin, Congruences for the coefficients of powers of a polynomial
2016 Mieszko Komisarczyk and Paweł Poczobut, Generalizing Bernoulli numbers