September 2025

CURRICULUM VITAE

Masha Vlasenko

Email: maria.vlasenko@kse.org.ua
Home page: http://www.imath.kiev.ua/~mariyka

Born: December 25, 1979 — Kyiv
Nationality: Ukrainian

Principal employment

2024- *Associate Professor*, Kyiv School of Economics

Previous positions

2004-2005 *Research fellow*, Institute of Mathematics of the National Academy of Sciences of Ukraine, Kyiv
2005-2006 *Postdoctoral research fellow*, Max Planck Institute for Mathematics, Bonn
2007-2008 *EPDI Postdoctoral research fellow*, Institut des Hautes Études Scientifiques, Bures-sur-Yvette
2008-2009 *EPDI 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 *(permanent position, terminated to move to Poland)*
2015-2021 *Assistant professor*, Institute of Mathematics of the Polish Academy of Sciences
2021-2025 *Associate Professor*, Institute of Mathematics of the Polish Academy of Sciences (IMPAN)

Professional service

2020-2024 Organiser of the Number Theory Seminar at IMPAN
2022- Member of the Co-ordination Committee and Managing Director of the International Centre for Mathematics in Ukraine (ICMU)
2023-2025 Member of the Scientific Council of IMPAN
2025- Chair of the Department of Mathematics at the Kyiv School of Economics (KSE)

Education and scientific degrees

2001

MSc in Applied Mathematics, National Technical University of Ukraine

2005 PhD in Mathematics, Institute of Mathematics, National Academy of Sciences of Ukraine

2021 Habilitation, Institute of Mathematics of the Polish Academy of Sciences
Title: *Arithmetic of Picard–Fuchs differential equations*

Grants

2017-2020 OPUS, National Science Centre of Poland (UMO-2016/21/B/ST1/03084)
Title: *Arithmetic properties of formal group laws*

2021-2025 OPUS, National Science Centre of Poland (UMO-2020/39/B/ST1/00940)
Title: *Arithmetic of differential equations*

Students

2013 David Mulligan, BSc thesis / final year project *The Weil Conjectures for Elliptic Curves*, Trinity College Dublin
Jack Kelly, BSc thesis / final year project *Algebraic hypergeometric functions*, Trinity College Dublin

2015 Ewan Dalby, BSc thesis / final year project *Congruences for the Fourier coefficients of modular forms*, Trinity College Dublin

2022 Semen Słobodianiuk, BSc thesis *Integral ratios of factorials and algebraic hypergeometric functions*, University of Warsaw

2023 Mieszko Zimny, MSc thesis *Dwork's congruences and zeta functions*, University of Warsaw

2024 Sebastian Gontarek, MSc thesis *p-adic modular forms after Serre*, University of Wrocław

Recent lecture courses

2020-2022 *Introduction to modular forms*, University of Warsaw

2023 *Number theory*, Kyiv Academic University

2024 *Cohomology and congruences*, mini-courses in
School on Number Theory and Physics, 17-21 June, ICTP in Trieste
XXVII Algebraic School, 15-19 July, University of São Paulo
p-adic approach to differential equations, mini-course in Algebraicity and Transcendence for Singular Differential Equations workshop, 7-11 October, Erwin Schrödinger Institute, Vienna

Selected publications

2011 (with Sander Zwegers) *Nahm's conjecture: asymptotic computations and counterexamples*, **Communications in Number Theory and Physics** 5 (2011), 617–642

2013 (with Don Zagier) *Higher Kronecker "limit" formulas for real quadratic fields*, **Journal für die Reine und Angewandte Mathematik** 679 (2013), 23–64

2016 (with Anton 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

2018 *Higher Hasse–Witt matrices*, **Indagationes Mathematicae** 29 (2018), 1411–1424

2019 *Formal groups and congruences*, **Transactions of the American Mathematical Society**, vol. 371, no. 2 (2019), 883–902

2021 (with Frits Beukers) *Dwork crystals I*, **International Mathematical Research Notices** 12 (2021), 8807–8844

(with Frits Beukers) *Dwork crystals II*, **International Mathematical Research Notices** 6 (2021), 4427–4444

(with Spencer Bloch) *Gamma functions, monodromy and Frobenius constants*, **Communications in Number Theory and Physics** 15 (2021), no. 1, 91–147

Hodge structures and differential operators, **Springer PROMS** 373 (2021), 127–139

2023 (with Frits Beukers) *Dwork crystals III: from excellent Frobenius lifts towards supercongruences*, **International Mathematical Research Notices** 23 (2023), 20433–20483

(with Frits Beukers) *On p-integrality of instanton numbers*, **Pure and Applied Mathematics Quarterly** 19 (2023), no. 1 – Special Issue in honour of Don Zagier, 7–44

(with Bidisha Roy) *Frobenius constants for families of elliptic curves*, **The Quarterly Journal of Mathematics** 74 (2023), Issue 4, 1571–1595

2025 (with Frits Beukers) *Frobenius structure and p-adic zeta values*, **Advances in Mathematics** 480 (2025), Part C, 25 pp.

Non-mathematical publications

2020 (with Ahmed Abbes, Michel Broué, Chandler Davis, Adrien Deloro, Ivar Ekeland and Michael Harris) *When Scientists Become Political Dissenters*, **Scientific American**, 16 October 2020

2023 (with Efim Zelmanov) *Voices from the Bombed Universities of Ukraine*, **Notices of the American Mathematical Society** June/July 2023 - *an interview with Oksana Bezushchak, Sergey Gefter and Volodymyr Kadets*

2024 (with Andrey Gogolev, Volodymyr Nekrashevych, Pavlo Pylyavskyy, Dmytro Savchuk) *New Mathematical Center in Ukraine*, **Notices of the American Mathematical Society** January 2024