CHRISTOPHER DAVID LAZDA

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RESEARCH INTERESTS

Arithmetic geometry and number theory, characteristic p geometry, p-adic cohomology, homotopy theory, crystalline fundamental groups, degenerations of varieties, arithmetic of K3 surfaces.

EMPLOYMENT

Universiteit van Amsterdam *September 2017 - Present*
Post-doctoral researcher, Korteweg–de Vries Institute for Mathematics

Università Degli Studi di Padova *November 2015 - August 2017*
Marie Curie INdAM Fellow

Imperial College London *October 2015 - October 2015*
HIMR Research Fellow

Imperial College London *April - September 2014*
EPSRC Doctoral Prize Fellow

EDUCATION

Ph.D., Imperial College London *October 2010 - March 2014*
Thesis title: "Rational homotopy theory in arithmetic geometry, applications to rational points"
Advisor: Dr. A. Pál

C.A.S.M./ M.Math., University of Cambridge *October 2009 - June 2010*
Distinction. Thesis title: "2-Descent on the Jacobians of Hyperelliptic Curves"
Advisor: Dr. T. Fisher

B.A., University of Cambridge *October 2006 - June 2009*
1st Class (Hons)

FUNDING

Workshop "Interactions between Arithmetic and Homotopy Theory *February 2017*
£5,000 from HIMR, £2,500 from LMS

Workshop "p-adic cohomology and arithmetic applications" *October 2017*
Full funding for workshop held at the Banff International Research Station

Marie Curie INdAM COFUND Fellowship *November 2015 - August 2017*
Project title "p-adic cohomology and homotopy theory over equicharacteristic local fields", total value €101,700

Workshop "Recent trends in p-adic cohomology" *March 2015*
£10,000 from EPSRC

EPSRC Doctoral Prize Fellowship *April - September 2014*
Total value £21,064

PUBLICATIONS

Journal Articles

1. C. Lazda and A. Pál, *Cycle classes in overconvergent rigid cohomology and a semistable Lefschetz* $(1,1)$ *theorem*, to appear in Compos. Math.
2. B. Chiarellotto and C. Lazda, *Around ℓ-independence*, Compos. Math., (2018) **154** (1): 223-248.
3. C. Lazda, *Fundamental groups and good reduction criteria for curves over positive characteristic local fields*, J. Théor. Nombres Bordeaux, (2017) **29** (3): 755-798.
4. B. Chiarellotto and C. Lazda, *Combinatorial degenerations of surfaces and Calabi–Yau threefolds*, Algebra & Number Theory, (2016) **10** (10):2235–2266.
5. C. Lazda, *Incarnations of Berthelot's conjecture*, J. Number Theory (2016) **166**:137–157.
6. C. Lazda, *Relative fundamental groups and rational points*, Rend. Sem. Mat. Univ. Padova (2015) **134**:1–45.
7. C. Lazda, *Rigid rational homotopy types*, Proc. London Math. Soc. (2014) **109** (2):523–551.

Monographs

1. C. Lazda and A. Pál, *Rigid cohomology over Laurent series fields*, Springer (2016), vol. 21 of 'Algebra and Applications', pp x+267.

Preprints

1. B. Chiarellotto, C. Lazda and N. Mazzari, *The filtered Ogus realisation of motives.* `https://arxiv.org/abs/1808.03146` (13 pages)
2. C. Lazda, *Local acyclicity in p-adic cohomology.* `https://arxiv.org/abs/1808.00280` (45 pages)
3. B. Chiarellotto, C. Lazda and C. Liedtke, *A Néron–Ogg–Shafarevich criterion for K3 surfaces.* `http://arxiv.org/abs/1701.02945` (51 pages)
4. C. Lazda, *A note on effective descent for overconvergent isocrystals.* `http://arxiv.org/abs/1706.05300` (10 pages)
5. C. Lazda and A. Pál, *A homotopy exact sequence for overconvergent isocrystals.* `http://arxiv.org/abs/1704.07574` (31 pages)

ACTIVITIES ORGANISED

Intercity Geometry Seminar *Spring 2018, 2019*
Study seminar held across the Netherlands on moduli spaces of Higgs bundles and logarithmic ableian varieties respectively. Organised jointly with D. Holmes and A. Smeets.

Workshop "p-adic cohomology and arithmetic applications" *October 2017*
Held at the Banff International Research Station. Organised jointly with T. Abe, K. Kedlaya and A. Pál.

Workshop "Interactions between Arithmetic and Homotopy Theory" *February 2017*
Held at Imperial College London. Organised jointly with A. Pál and T. Schlank.

Study group "Moduli of p-divisible groups *Spring 2016*
Learning seminar at Università di Padova. Organised jointly with B. Chiarellotto and M. Longo.

Workshop "Recent trends in p-adic cohomology" *March 2015*
Held at Imperial College London. Organised jointly with A. Pál.

CONFERENCE INVITATIONS

Conference in honour of Bernard Le Stum's 60th birthday, Università di Padova	*September 2019*
F-isocrystals and families of algebraic varieties, IMPAN, Warsaw	*November 2018*
p-adic cohomology and arithmetic geometry 2018, Tohoku University	*November 2018*
Crystals and Geometry in characteristic p, Technische Universität München	*April 2018*
p-adic Analytic Geometry and Differential Equations, CIRM, Luminy	*March 2017*
Interactions between Arithmetic and Homotopy Theory, Imperial College London	*September 2015*
p-adic manifolds and applications, Universität Wuppertal	*July 2015*
Function fields, zeta functions and Drinfeld modular forms, Imperial College London	*June 2015*
TCC Graduate Event Day in Number Theory, University of Bristol	*June 2013*

INVITED SEMINARS

Fourier Institute, Université Grenoble Alpes	*January 2019*
Algebra and Geometry Seminar, Stockholms Universitet	*December 2018*
Algebra Seminar, Universiteit Lieden	*November 2018*
Number Theory Seminar, Université de Bordeaux	*May 2018*
Algebra Seminar, Technische Universität München	*December 2017*
Intercity Number Theory Seminar, Vrije Universiteit Amsterdam	*November 2017*
Fourier Institute, Université Grenoble Alpes	*October 2017*
Universiteit van Amsterdam	*September 2017*
IMJ-PRG Number Theory Seminar, Université Pierre et Marie Curie	*June 2017*
Adam Mickiewicz University	*May 2017*
Seminario Dottorato, Università Degli Studi di Padova	*March 2017*
IRMA, Université de Strasbourg	*December 2016*
Université de Rennes I	*November 2016*
Università Degli Studi di Milano	*April 2016*
Università Degli Studi di Padova	*June 2015*
Max Planck Institute for Mathematics	*December 2014*
Number Theory Seminar, University of Cambridge	*November 2014*
Università Degli Studi di Padova	*July 2014*
Number Theory seminar, University of Oxford	*June 2014*
London Number Theory Seminar, University College London	*June 2014*

RESEARCH VISITS

Kavli IPMU, Host: Dr. T. Abe	*October 2018*
Technische Universität München, Host: Prof. C. Liedtke	*December 2017*
Institut Mittag-Leffler, program "Algebro-geometric and homotopical methods"	*March 2017*
Université de Rennes I, Host: Prof. B. Le Stum	*November 2016*
Imperial College London, Host: Dr. A. Pál	*May 2016*
Università Degli Studi di Padova, Host: Prof. B. Chiarellotto	*June 2015*
Max Planck Institute for Mathematics, Host: Dr. A. Pál	*December 2014*
Università Degli Studi di Padova, Host: Prof. B. Chiarellotto	*July 2014*

TEACHING EXPERIENCE

Topics in Number Theory *Spring 2019*

Class size: 15 (expected), Level: Masters.

I am currecntly developing a new course on global class field theory for master students at the University

of Amsterdam. Responsibilities include course design, setting and grading example sheets and final exams, lecturing and running problem classes.

Homotopy Theory and Arithmetic Geometry *July 2018*
Class size: 25, Level: Research student.
Assistant for the lecture course "Cohomological methods in intersection theory" as part of a LMS-CMI summer school on homotopy theory at Imperial College London.

Vector Calculus *Spring 2018*
Class size: 15, Level: 2nd year undergraduate.
Bachelor's course for liberal arts students at Amsterdam University College. Responsibilities include course design, setting and grading example sheets and final exams, lecturing and running problem classes.

Algebraic Geometry *Spring 2016, 2017*
Class size: 25, Level: Masters.
Introductory course in algebraic geometry given with B. Chiarellotto for masters students on the ALGANT program at the University of Padova. Giving lectures and participating in online discussion groups.

Fundamental groups in algebraic geometry *June 2015*
Class size: 25, Level: Masters.
4 lecture mini-course on fundamental groups in algebraic geometry for masters students on the ALGANT program at the University of Padova.

The Weil conjectures and Betti numbers of moduli spaces *Autumn 2014*
Class size: 15, Level: 1st year Ph.D.
10 lecture course on the Weil conjectures and Monsky–Washnitzer cohomology for first year Ph.D. students at the London School of Geometry and Number Theory.

Tutor in Foundations of Analysis *Autumn 2013*
Class size: 10, Level: 1st year undergraduate.
Tutorials for first year undergraduates at Imperial College London involving going through course material and problem sheets in small groups of students, as well as marking course homework.

Graduate Teaching Assistant *2011 - 2013*
Class size: ∼50, Level: 1st – 3rd year undergraduate.
Going through course material and problem sheets one on one with undergraduate students at Imperial College London. Courses including Foundations of Analysis, Real Analysis, Complex Analysis, Algebra I & II and Linear Algebra.

Study groups and learning seminars *2010 - 2018*
Class size: 10-50, Level: Ph.D. and upwards.
Regular talks given as part of study groups and learning seminars on a wide range of topics in London, Padova, and Amsterdam.

THESES SUPERVISED

Olivier de Gaay Fortman *Expected August 2019*
Masters thesis at the University of Amsterdam, provisional title: "Inseparable extensions and torsors under finite flat group schemes"

Christopher Spelt *August 2018*
Masters thesis at the University of Amsterdam, title: "ℓ-independence for commutative algebraic k-group schemes"

Leon Ingelse *August 2018*
Bachelor thesis at the University of Amsterdam, title: "p-adic numbers and the local global principle"

SERVICE

Refereeing
Algebra & Number Theory, Annales Mathématiques du Québec, Commentarii Mathematici Helvetici, Compositio Mathematica, Documenta Mathematica, International Mathematics Research Notices, Journal of Number Theory, Revista Matemática Complutense, Transactions of the American Mathematical Society

Reviewing
MathSciNet

REFERENCES

Available on request