GERGELY BÉRCZI

Nationality: Hungarian and British

Address: Mathematical Institute, University of Oxford, Andrew Wiles Building, Woodstock Road, OX2 6GG, Oxford, UK

berczi@maths.ox.ac.uk

Research interest: Algebraic Geometry, Algebraic Topology, Symplectic Geometry. Non-reductive group actions and non-reductive GIT with applications: global singularity theory and Thom polynomials; invariant theory and the Popov-Pommerening conjecture; hyperbolic varieties and the Green-Griffiths conjecture; enumerative geometry, Hilbert schemes of points on surfaces and in higher dimensions and curve counting.

Employment History

Oct 2011-present	**Christ Church College and University of Oxford**
	Career Development Fellow and Tutor in Mathematics
	Main duties and reponsibilities:
	Tutorials for 1st and 2nd year undergraduates in pure mathematics subjects.
	Lecturing and organising PartC Algebraic Geometry course in the Mathematical Institute.
	Mentoring and supervising graduate students at Christ Church College.
	Assisting in the selection of undergraduate for admission, interviewing candidates.
	Taking part in the administrative work at Christ Church: member of the Governing Body and several committees.
	Participation in organising seminars in the Mathematical Institute.
Oct 2008-Sept 2011	**University of Oxford**
	Postdoctoral Research Assistant
	Funded by EPSRC grant EP/G000174/1
	Localisation on quotients by non-reductive group actions and global singularity theory
	Principal Investigator: Frances Kirwan
Jan 2009-Sept 2011	**Wolfson College, Oxford**
	Junior Research Fellow
Oct 2007-Sept 2008	**University of Edinburgh**
	William Seggie Brown Postdoctoral Research Fellow
Jan-Aug 2007	**University of Oxford, Mathematical Institute**
	Marie Curie Early Stage Researcher, LIEGRITS network
	Mentor: Prof. Frances Kirwan.

Education

2003-Sept 2008	**Budapest University of Technology, Budapest, Hungary**
	PhD student in mathematics
	Supervisor: András Szenes.
	Title of PhD thesis: *Multidegrees of singularities and*
	non-reductive quotients
1998-2003	**Eötvös Loránd University, Budapest, Hungary**
	MSc in Mathematics
	M.Sc. Diploma Summa Cum Laude in Mathematics, June 2003;

Awards

Rényi Kató Junior Research Prize 2003
> *Awarded for outstanding MSc student research publication*

Schweitzer Miklós Competition III prize, 2000
> *International mathematical competition for undergraduate students*

Supervised students:

Joshua Jackson, 2014- (joint DPhil student with Frances Kirwan)

Temitope Ajileye, MSc student 2015, Diploma 1st

Matthew Carr, MSc student 2015, Diploma 1st with Distinction

College supervisor of Christ Church mathematics graduate students since 2012

Teaching experience in Oxford

Michaelmas 2010-2014	**Lecturer**
	Part C Algebraic Geometry
	4th year and MSc course.
Michaelmas 2011- Trinity 2016	**Tutor in Pure Mathematics**
	Christ Church College
	Tutorials and classes for 1st and 2nd years
Trinity Term, 2011	**Tutorial teaching**
	Wadham College, Oxford
	Geometry of surfaces, Topology
Trinity Term, 2010	**Lecturer**
	Graduate lecture course in singularity theory
Michaelmas 2010, Trinity 2010	
Hilary 2010, Michaelmas 2009	**Class Tutor**
	Mods Geometry I, Linear Algebra I
	Somerville College, Oxford
Michaelmas Term 2009	**Teaching Assistant**
	C9.1a Analytic Number Theory
	Lecturer: Hung Boi
Trinity Term, Hilary Term 2009	**Teaching Assistant and Class Tutor**
	Mods Geometry I,II, Linear algebra I,II
	and Analysis I,II,III
	Balliol College, Oxford.

Teaching experience outside Oxford

2007-2008	**Exercise classes in algebraic topology**
	University of Edinburgh
2003-2006	**Teaching Assistant**
	Budapest University of Technology
	Exercise classes in Analysis, Linear Algebra, Geometry
	and Probability Theory for undergraduate students.
2000-2003	**Teaching Assistant**
	Eötvös Loránd University, Budapest
	Exercise classes in number theory, combinatorics, graph theory
	for undergraduate students.

Publications

1. (with L. Fehér, R. Rimányi) Expressions for resultants coming from the global theory of singularities, *Topics in Algebraic and Noncommutative geometry, Contemporary Mathematics* **324**, *AMS, 2003.*

2. (with A. Szenes) Thom polynomials of Morin singularities, *Annals of Mathematics, 175 (2012), 567-629.*

3. Thom polynomials and the Green-Griffiths conjecture, *arXiv:1011.4710, submitted.*

4. Tautological integrals on curvilinear Hilbert schemes, *arXiv:1510.09206, submitted.*

5. On the Popov-Pommerening conjecture for linear algebraic groups, *arXiv:1304.7719, submitted.*

6. Towards the Green-Griffiths-Lang conjecture via equivariant localisation, *arXiv:1509.03406, submitted.*

7. (with F. Kirwan) Graded unipotent groups and Grosshans theory, *arXiv:1511.06983, submitted*

8. (with F. Kirwan, B. Doran, T. Hawes) Geometric invariant theory for graded unipotent groups and applications, *arXiv:1601.00340.*

9. (with F. Kirwan, B. Doran, T. Hawes) Constructing quotients of algebraic varieties by linear algebraic groups, Survey paper to appear in *Handbook of Group Actions, Editors: Lizhen Ji, Athanase Papadopoulos, Shing-Tung Yau* Advanced Lectures in Mathematics (ALM), Higher Education Press and International Press.

10. (with F. Kirwan, B. Doran, T. Hawes) Projective completions of graded unipotent quotients, in preparation, expected in February 2016.

11. (with F. Kirwan) A geometric construction for invariant jet differentials, *Surveys in Differential Geometry, Vol XVII (2012), 79-126.*

12. Moduli of map germs, Thom polynomials and the Green-Griffiths conjecture, *Contributions to Algebraic Geometry, edited by P. Pragacz, EMS, 2012, 141-168.*

Hobbies: Triathlon, Mountaineering, Water Polo