Curriculum Vitae: Adam Morgan

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EMPLOYMENT

Gonville and Caius College, University of Cambridge   **Sept 2024 -**

College Lecturer and Assistant Professor of Mathematics

University of Glasgow   **Oct 2021- Sept 2024**

EPSRC Research Fellow

Mathematisches Forschungsinstitut Oberwolfach   **Jan 2021- April 2021**

Leibniz fellow

MPIM Bonn   **Oct 2019- Oct 2020**

Postdoctoral fellow

University of Glasgow   **Oct 2018 - Sept 2019**

Research Associate

King's College London   **Sept 2016 - Sept 2018**

Research Associate

University of Warwick   **Oct 2015 - Aug 2016**

Research Assistant

Detica   **June - Sept 2011**

Intern (Programming and statistical modelling, primarily in SAS)

EDUCATION

University of Bristol

PhD in Mathematics   **Oct 2012 - Sept 2015**
Supervised by Professor Tim Dokchitser

Clare College, University of Cambridge

MMath (Part III of the Mathematical Tripos)   **Oct 2011 - June 2012**
Passed with Distinction (ranked 5th)

BA in Mathematics   **Oct 2008 - June 2011**
First class each year

GRANTS AND PRIZES

EPSRC postdoctoral fellowship, awarded 2021

Faculty of Science Commendation for excellence in a doctoral thesis awarded by University of Bristol, 2016

EPSRC doctoral training grant, 2012 - 2016

Robert Greene cup for academic excellence awarded by Clare College, June 2012

Horne Prize for Physical Sciences awarded by Clare College, three consecutive years 2009-2011

Salters Horners advanced physics prizewinner 2008 (top mark in A-Level physics)

ACCEPTED PAPERS

Field change for the Cassels-Tate pairing and applications to class groups, with A. Smith, Res. Number Theory 10 (2024), no. 3, article no. 61

2-Selmer parity for hyperelliptic curves over quadratic extensions, Proc. London Math. Soc. 127 (2023), no. 5, 1507-1576

Isogenies between abelian varieties with good ordinary reduction, 3 pages, appendix to V. Dokchitser and C. Maistret, On the parity conjecture for abelian surfaces, Proc. London Math. Soc. 127 (2023), no. 2, 295-365

A note on hyperelliptic curves with ordinary reduction over 2-adic fields, with V. Dokchitser, J. Number Theory 244 (2023), 264-278

Arithmetic of hyperelliptic curves over local fields, with T. Dokchitser, V. Dokchitser and C. Maistret, Math. Ann. 385 (2023), 1213–1322.

A user's guide to the local arithmetic of hyperelliptic curves, with A. Best, L.A. Betts, M. Bisatt, R. van Bommel, V. Dokchitser, O. Faraggi, S. Kunzweiler, C. Maistret, S. Muselli, S. Nowell, Bull. Lond. Math. Soc. 54 (2022), no. 3, 825–867

On 2-Selmer groups of twists after quadratic extension, with R. Paterson, J. London Math. Soc. 105 (2022), no. 2, 1110-1166.

Tate module and bad reduction, with T. Dokchitser and V. Dokchitser, Proc. Amer. Math. Soc. 149 (2021), 1361-1372.

Quadratic twists of abelian varieties and disparity in Selmer ranks, Algebra Number Theory 13 (2019), no. 4, 839–899.

Semistable types of hyperelliptic curves, with T. Dokchitser, V. Dokchitser and C. Maistret, Algebraic curves and their applications, 73–135, Contemp. Math., 724, Amer. Math. Soc., Providence, RI, 2019.

Integral module structure of $\Lambda_{A/K}$ for Jacobians of semistable hyperelliptic curves of genus 2, with V. Dokchitser, appendix to L. A. Betts and V. Dokchitser, *Finite quotients of $\mathbb{Z}[C_n]$-lattices and Tamagawa numbers of semistable abelian varieties*, Math. Proc. Cambridge Philos. Soc. 166 (2019), no. 3, 487–521.

PREPRINTS

A note on local formulae for the parity of Selmer ranks, Sept 2024, arXiv:2409.08034

On Galois covers of curves and arithmetic of Jacobians, with A. Konstantinou, July 2024, arXiv:2407.18258

Hasse principle for intersections of two quadrics via Kummer surfaces, with A. N. Skorobogatov, July 2024, arXiv:2407.16459

Hasse principle for Kummer varieties in the case of generic 2-torsion, Sept 2023, arXiv:2309.02374

Parity of ranks of Jacobians of curves, with V. Dokchitser, H. Green and A. Konstantinou, Nov 2022, arXiv:2211.06357

The Cassels–Tate pairing for finite Galois modules, with A. Smith, March 2021, arxiv:2103.08530.

The 4-rank of class groups of $K(\sqrt{n})$, with P. Koymans and H. Smit, Jan 2021, arxiv:2101.03407.

INVITED LECTURE COURSES

Four lecture course *Local arithmetic of curves and Jacobians* for *CMI-HIMR Summer school in Computational Number Theory*, University of Bristol, June, 2019.

Four lecture course *L-functions and the Birch and Swinnerton-Dyer conjecture* for the summer school *Curves, L-functions and Galois representations*, ICTP Trieste, September 2017.

ORGANISATIONAL ACTIVITIES

Organiser of *Gauge Fields in Arithmetic, Topology and Physics*, ICMS Edinburgh, March 6-10 2023

Organiser of *Young Researchers in Algebraic Number Theory* (Y-RANT) 2022, University of Glasgow, Aug 23-25

Organiser of the Algebra and Number Theory Seminar, University of Glasgow, Oct 2021-

TEACHING AND PROJECT SUPERVISION

10 hour SMSTC lecture course *Algebras and Representation Theory*, University of Glasgow, Jan-Mar 2023.

12 hour SMSTC lecture course *Galois cohomology and central simple algebras*, University of Glasgow, Jan-Mar 2019.

Supervisor for *Groups, Analysis I, Linear Algebra*, and *Groups, Rings and Modules*, University of Cambridge, Oct 2024 -.

Supervisor for two MSci projects *Parametrization of rings of small rank* and *Composition of binary quadratic forms*, King's College London, June-Sept 2017

Linear algebra and geometry, teaching assistant, University of Bristol, 2013-2014

Analysis, teaching assistant, University of Bristol, 2013-2014

Group theory maths cafe, organiser, University of Bristol, May 2013

Maths 1A20 (introduction to calculus and analysis), teaching assistant, University of Bristol, 2012-2013.

EDITORIAL WORK

Number theory subject editor, Glasgow Mathematical Journal, Jan 2025 -

SELECTED TALKS

Hasse principle for intersections of two quadrics via Kummer surfaces, Algebra and Number Theory Seminar, *University of Glasgow*, Jan 2025

Hasse principle for intersections of two quadrics via Kummer surfaces, Rational varieties seminar, *École polytechnique*, Paris, Nov 2024

Hasse principle for intersections of two quadrics via Kummer surfaces, Great Western Number Theory Seminar, *University of Oxford*, Sept 2024

On the Hasse principle for Kummer varieties, invited speaker at the CMI-BIRS workshop *New directions in rational points*, CMI Chennai, Jan 2024

Counterexamples to the Hasse principle in quadratic twist families of hyperelliptic curves, Arithmetic Geometry Seminar, *University of Bath*, Nov 2023

On the Hasse principle for Kummer varieties, Intercity Number Theory Seminar, *Universiteit Leiden*, Nov 2023

On the Hasse principle for Kummer varieties, Number Theory Seminar, *The Hebrew University of Jerusalem*, June 2023

On the Hasse principle for Kummer varieties, invited speaker at the 33rd meeting of London-Paris Number Theory Seminar, Imperial College London, June 2023

Counterexamples to the Hasse principle in quadratic twist families of genus 1 hyperelliptic curves, invited speaker at *Number Theory Section, Representation Theory XVIII*, Dubrovnik, June 2023

Invariants of hyperelliptic curves over local fields, invited speaker at *Number Theory meets Tropical Geometry: the semistable reduction of curves*, MPIM Leipzig, April 2023

Hasse principle for Kummer varieties in the case of generic 2-torsion, invited speaker at *Arithmetic, Algebra, and Algorithms*, ICMS Edinburgh, April 2023

Parity of ranks of abelian varieties, invited speaker for the Algebraic Number Theory and Diophantine Geometry workshop at the British Mathematical Colloquium 2023

Hasse principle for Kummer varieties in the case of generic 2-torsion, Heilbronn seminar, University of Bristol, March 2023

Hasse principle for Kummer varieties in the case of generic 2-torsion, Number Theory Seminar, University of Oxford, Feb 2023

Parity of ranks of abelian varieties, invited speaker at *Mordell 2022: a centenary of elliptic curves*, University of Cambridge, Aug 2022

Integral Galois module structure of Mordell–Weil groups, Queen Mary Number Theory Seminar, Dec 2021

Integral Galois module structure of Mordell-Weil groups, invited speaker at the Paris-London Number Theory Seminar, Université Sorbonne Paris Nord, Nov 2021

The 2-parity conjecture for Jacobians of hyperelliptic curves, Glasgow Algebra and Number Theory Seminar, Oct 2021

Integral Galois module structure of Mordell–Weil groups, invited speaker at *Arithmetic Statistics and Local Global Principles*, ESI Vienna Sept 2021

Integral Galois module structure of Mordell–Weil groups, invited speaker at *Workshop on arithmetic statistics problems*, June 2021

Invariants of hyperelliptic curves over local fields, KTH Number Theory seminar, Stockholm, Feb 2020

Parity of Selmer ranks in quadratic twist families, Intercity seminar, Leiden, Feb 2020

Parity of Selmer ranks in quadratic twist families, Number theory seminar, MPIM Bonn, Dec 2019

Parity of Selmer ranks in quadratic twist families, Warwick Number Theory seminar, University of Warwick, June 2019

Class groups, Selmer groups and Cassels–Tate pairings, invited speaker at the conference *Enumerative Arithmetic and the Cohen–Lenstra Heuristics*, MPIM, Bonn, June 2019

Parity of Selmer ranks in quadratic twist families, London Number Theory seminar, University College London, January 2019

Parity of ranks of abelian varieties, Algebra seminar, University of Glasgow, November 2018

Parity of 2-Selmer ranks of abelian varieties over quadratic extensions, contributed talk for the conference *Rational and Integral Points via Analytic and Geometric Methods*, CMO Oaxaca, June 2018

Parity of 2-Selmer ranks of abelian varieties over quadratic extensions, invited speaker at *Rational points in Bristol*, University of Bristol, February 2018

Parity of Selmer ranks in quadratic twist families, contributed talk for the conference *Curves and L-functions*, ICTP Trieste, September 2017

Parity of Selmer ranks in quadratic twist families, Number Theory seminar, University of Manchester, February 2017

Parity of Selmer ranks in quadratic twist families, Algebra seminar, University of Pennslyvania, November 2016

Parity of ranks of abelian varieties, Quebec–Vermont Number Theory seminar, October 2016

Parity of Selmer ranks in quadratic twist families, Number Theory seminar, University of Cambridge, September 2016

Parity of Selmer ranks in quadratic twist families, contributed talk for the conference *Arithmetic statistics and the Cohen–Lenstra heuristics*, University of Warwick, June 2016

2-Selmer parity for Jacobians of hyperelliptic curves over quadratic extensions, Geometry and Algebra seminar, Utrecht university, December 2015

Parity of 2-Selmer ranks of hyperelliptic curves over quadratic extensions, contributed talk, CNTA XIII, Ottawa, June 2014

Parity of 2-Selmer ranks of hyperelliptic curves over quadratic extensions, University of Warwick Number Theory seminar, January 2014