Curriculum Vitae: Adam Morgan

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EMPLOYMENT

University of Glasgow **Oct 2021-**

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, 2015

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

Arithmetic of hyperelliptic curves over local fields, with Tim Dokchitser, Vladimir Dokchitser and Céline Maistret, Math. Ann., to appear

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. London Math. Soc., to appear

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

Tate module and bad reduction, with Tim Dokchitser and Vladimir 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 Tim Dokchitser, Vladimir Dokchitser and Céline 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 Vladimir Dokchitser, appendix to L. Alexander Betts and Vladimir 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 hyperelliptic curves with ordinary reduction over 2-adic fields, with Vladimir Dokchitser, arxiv:2203.11254 .

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

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

Isogenies between abelian varieties with good ordinary reduction, 3 pages, appendix to Vladimir Dokchitser and Céline Maistret, Parity conjecture for abelian surfaces, arxiv:1911.04626.

2-*Selmer parity for hyperelliptic curves over quadratic extensions*, arXiv:1504.01960.

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.

SELECTED TALKS

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 *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 ranks of abelian varieties, contributed talk for the conference *Young Researchers in Algebraic Number Theory*, University of Sheffield, 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

2-Selmer parity for Jacobians of hyperelliptic curves over quadratic extensions, TCC Number Theory day, Imperial College London, April 2015

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

On Bhargava and Shankar's work on the average rank of elliptic curves, Linfoot seminar, University of Bristol, February 2014

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

Sheaves of modules, two talks for the TCC course 'Algebraic Geometry for Number Theory', October-December 2013

TEACHING AND PROJECT SUPERVISION

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

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.

ORGANISATIONAL ACTIVITIES

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-

Organiser for the number theory study group *Average ranks of elliptic curves,* University of Warwick, Sept-Dec 2015.