

## Curriculum Vitae: Adam Morgan

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### EMPLOYMENT

<b>University of Glasgow</b>	<b>Oct 2021-</b>
EPSRC Research Fellow	
<b>Mathematisches Forschungsinstitut Oberwolfach</b>	<b>Jan 2021- April 2021</b>
Leibniz fellow	
<b>MPIM Bonn</b>	<b>Oct 2019- Oct 2020</b>
Postdoctoral fellow	
<b>University of Glasgow</b>	<b>Oct 2018 - Sept 2019</b>
Research Associate	
<b>King's College London</b>	<b>Sept 2016 - Sept 2018</b>
Research Associate	
<b>University of Warwick</b>	<b>Oct 2015 - Aug 2016</b>
Research Assistant	
<b>Detica</b>	<b>June - Sept 2011</b>
Intern (Programming and statistical modelling, primarily in SAS)	

### EDUCATION

<b>University of Bristol</b>	
<i>PhD in Mathematics</i>	<b>Oct 2012 - Sept 2015</b>
Supervised by Professor Tim Dokchitser	
<b>Clare College, University of Cambridge</b>	
<i>MMath (Part III of the Mathematical Tripos)</i>	<b>Oct 2011 - June 2012</b>
Passed with Distinction (ranked 5th)	
<i>BA in Mathematics</i>	<b>Oct 2008 - June 2011</b>
First class each year	

## GRANTS AND PRIZES

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

*Tate module and bad reduction*, with Tim Dokchitser and Vladimir Dokchitser, 2019, to appear in Proc. Amer. Math. Soc.

*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

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

*On 2-Selmer groups of twists after quadratic extension*, with Ross Paterson, arxiv:2011.04374.

*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, arxiv:2007.01749.

*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.

*Arithmetic of hyperelliptic curves over local fields*, with Tim Dokchitser, Vladimir Dokchitser and Céline Maistret, arXiv:1808.02936.

*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

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

## SELECTED CONFERENCES ATTENDED

*Workshop on Arithmetic Geometry, Number Theory, and Computation*, ICERM, June 2020

*CMI-HIMR Summer School in Computational Number Theory*, University of Bristol, June 2019

*Enumerative Arithmetic and the Cohen–Lenstra Heuristics*, MPIM, Bonn, June 2019

*Arithmetic Geometry, Number Theory, and Computation*, MIT, August 2018

*Arithmetic of Curves*, Workshop in Baskerville Hall, Wales, August 2018

*Mathematics is a long conversation: a celebration of Barry Mazur*, Harvard University, June 2018

*Rational and Integral Points via Analytic and Geometric Methods*, CMO Oaxaca, June 2018

*Curves and L-functions*, ICTP Trieste, September 2017

*Perfectoid Spaces*, Arizona winter school, March 2017

*2016 Fields medal symposium*, Fields Institute, Toronto, October 2016

*Arithmetic statistics and the Cohen–Lenstra heuristics*, University of Warwick, June 2016

*Explicit methods in number theory*, University of Warwick, April 2016

*LMS-CMI Summer school on Diophantine Equations*, Baskerville Hall, Hay-on-Wye, September 2015

*Elliptic curves, modular forms and Iwasawa theory*, University of Cambridge, March 2015

*Arithmetic and higher dimensional varieties*, Arizona winter school, March 2015

*Counting arithmetic objects*, Summer school, Université de Montréal, June-July 2014

*CNTA XIII*, Ottawa, June 2014

*Arithmetic Statistics*, Arizona winter school, March 2014

*Young researchers in mathematics*, University of Edinburgh, June 2013

*Rational Points - Geometric, Analytic and Explicit Approaches*, University of Warwick, May 2013

*Iwasawa Theory and Galois Representations*, University of Warwick, April 2013

*Explicit Methods for Modular Forms*, University of Warwick, March 2013

*Selmer Groups, Descent and the Distribution of Ranks*, University of Warwick, September 2012