CONTACT Information

School of Mathematics and Statistics

University of Glasgow University Place Glasgow G12 8QQ United Kingdom

robin.bartlett.math@gmail.com

https://http://robin-bartlett.github.io./

RESEARCH INTERESTS

Algebraic number theory, with a particular emphasis on integral p-adic Hodge theory and geometric aspects of moduli spaces of p-adic Galois representations.

EMPLOYMENT

### University of Glasgow

Rankin-Sneddon fellow, from 2023

### University of Münster

Postdoctoral researcher, 2020-2023

# Max Planck Institute for Mathematics (Bonn)

Postdoctoral researcher, 2018-2020

### **EDUCATION**

# Kings College London and the London School of Geometry and Number Theory

Ph.D. in Mathematics, 2014-2018

Thesis: On the reduction modulo p of crystalline representations

• Supervised by Fred Diamond.

# University of Warwick

MMath 2010-2014

• Awarded first class degree.

# Papers

- $1. \ \ Cycles \ relations \ in \ the \ affine \ grassmannian \ and \ applications \ to \ Breuil-M\'ezard \ for \ G-crystalline \ representations$ 
  - Submitted 2023
- Explicit Serre weights for GL<sub>2</sub> (with Misja Steinmetz) Submitted 2022.
- 3. Degenerating products of flag varieties and applications to the Breuil-Mézard conjecture
  - To appear Selecta Mathematica.
- 4. Potential diagonalisability of pseudo-Barsotti-Tate representations To appear Journal de Théorie des Nombres de Bordeaux.
- 5. On the irreducible components of some crystalline deformation rings Forum of Mathematics Sigma, Volume 8, 2020, e22.
- 6. Potentially diagonalisable crystalline lifts with controlled Hodge-Tate weights Documenta Mathematica, 26, 795-827, 2021.
- 7. Inertial and Hodge-Tate weights of crystalline representation Mathematische Annalen, 376(1), 645-681.

### Services

- Organised the Summer semester 2022 Oberseminar (study group) on the topic of Modularity lifting theorems.
- Co-organised (with Eugen Hellmann) Münster number theory seminar (Summer
- Co-founded London junion number theory seminar (2016-2017)
- Referee for journals including Algebra and Number theory, Forum of Math Pi, Ann. Sci. de l'ENS, J. de l'Ecole Poly. Math, J. Théor. Nombres Bordeaux, and Math. Res. Lett.

- Conference talks Journées Arithmétiques 2023, Nancy (July 2023)
  - Banff International Research Station, Modularity and Moduli Spaces, CMO Oaxaca (Oct. 2019)

### SEMINAR TALKS

- Jussieu, Séminaire Groupes Réductifs et Formes Automorphes (Nov 2023)
- University of Glasgow, Algebra and Number theory seminar (Nov 2023)
- Queen Mary Number theory seminar (July 2023)
- University of Münster (Sep 2022)
- SUSTech, China (Mar. 2022)
- Université Paris 13 (Feb. 2022)
- University of Chicago Number theory seminar (Oct. 2021)
- Queen Mary University London (Mar. 2021)
- University of Arizona (Feb. 2021)
- University of Münster (Nov. 2020)
- University of Rennes (cancelled) (Jan. 2020)
- University of Leiden (Dec. 2019)
- Essen Arithmetic Geometry Research Seminar (Apr. 2019)
- Max Planck Institute for Mathematics Number Theory Seminar (Apr. 2019)
- Max Planck Institute for Mathematics Oberseminar (Nov. 2018)
- University of Purdue Automorphic Forms and Representation Theory Seminar (May
- University of Chicago Number Theory Seminar (May 2018)
- Junior London Number Theory seminar (Jan. 2018)
- Junior London Number Theory seminar (Oct. 2016)
- London Number Theory Study groups (2015 2018, at least one talk a term)

### AWARDS

2016	Awarded funding by King's College London Global research grant			
	to support a visit to Professor Frank Calegari and Professor			
	Matthew Emerton at University of Chicago. Value: GBP 2000.			

2013	Awarded funding from the University of Warwick for a summer
	research project supervised by Dr. Damiano Testa. Project Title:
	Galois conjugate polynomials. Value: GBP 1000.
0010	A 1 1 C 1 C 41 TT C XX7 . 1 C

Awarded funding from the University of Warwick for a summer 2012 research project supervised by Dr. Daan Krammer. Project Title: The Braid group of  $\mathbb{Z}^n$ . Value: GBP 1000.

### Teaching EXPERIENCE

## University of Münster

Masters course: Deformation theory of Galois representations (Winter semester 2021/22)

• Course aimed at masters and Phd students.

### King's College London

Teaching Assistant (2016-2018)

• Ran tutorials for classes of 10-20 first and second year undergraduates (Elementary Number Theory, Linear Methods, Geometry, Curves and Surfaces, Introduction to abstract algebra).

# University of Warwick

First year tutor (2013-2014)

• Tutored a group of 5 first year mathematics students over the course of a year. Graded their assignments for analysis, linear algebra, number theory and abstract algebra courses.

# King's College London Mathematics School

Class tutor (2017-2018)

 $\bullet$  Taught two groups of 16-17 year old students mathematical problem solving classes.

	E-11	2015	Metives and Automorphic Forms (Clay research conforms) Or
CONFERENCES ATTENDED	Fall	2015	Motives and Automorphic Forms (Clay research conference), Ox-
	Spring	2016	ford Recent developments in integral p-adic cohomology theories, Bonn
	Spring	2016	Recent trends in p-adic Cohomology, London
	Summer		Fundamental groups in arithmetic geometry, Paris
	Summer		London-Paris Number Theory Seminar on p-adic groups and arith-
	Summer	2010	metic geometry, Paris
	Fall	2016	Automorphic Forms: theory and computation, London
	Fall	2016	London-Paris Number Theory Seminar on perfectoid spaces, Paris
	Winter	2017	p-adic methods for modular forms and Galois representations,
	***************************************	2011	Barcelona
	Spring	2017	Arizona Winter School on perfectoid spaces, Arizona
	Summer	2017	London-Paris Number Theory Seminar on the trace formula, auto-
			morphic forms, and arithmetic manifolds, London
	Summer	2017	Journées Arithémiques 2017, Caen
	Summer	2017	BICRM p-adic Hodge theory and automorphic forms, Beijing
	Spring	2018	Arizona Winter School on Iwasawa theory, Arizona
	Summer	2018	A celebration of Barry Mazur, Cambridge MA
	Summer	2019	Commetanisation of the Langlands program Lyon
			Geometerisation of the Langlands program, Lyon
	Summer		Workshop on Galois representations, Heidelberg
	Fall	2018	Conference on Arithmetic Algebraic Geometry, Bonn
	Spring	2019	p-adic Langlands correspondence and Iwasawa theory, Lille
	Spring	2019	The p-adic Langlands programme and related topics, London
	Summer		The geometry and arithmetic of algebraic varieties, Bonn
	Summer		Arithmetic geometry in Carthage, Tunisia
	Fall	2019	The Emerton–Gee stacks and related topics, Bonn

Languages English (native), French (reading), German (beginner).