

# James Newton

Updated September 2021

## Employment

- 2021– **Associate Professor**, Mathematical Institute, University of Oxford.
- 2021– **Tutorial Fellow**, Merton College, University of Oxford.
- 2016–2021 **Lecturer, Senior Lecturer**, Department of Mathematics, King's College London.
- 2014 – 2016 **Research associate**, Department of Mathematics, Imperial College London.
- 2011 – 2014 **Research fellow**, DPMMS, University of Cambridge.
- 2011 – 2014 **Junior research fellow**, Trinity College, Cambridge.
- Jan–Apr 2011 **Member**, Institute for Advanced Study, Princeton.

## Education

- 2007 – 2011 **PhD**, Imperial College London.  
(advisor: Prof. Kevin Buzzard)
- 2006 – 2007 **Certificate of Advanced Study in Mathematics (Part III)**, University of Cambridge.
- 2003 – 2006 **BA (Hons) Mathematics**, University of Cambridge.

## Doctoral students

- 2020 – present Lambert A'Campo
- 2018 – present Ashwin Iyengar
- 2018 – 2021 Pol van Hoften

## Grants

- 2021 – 2025 **UKRI Future Leaders Fellowship**, £990,077.  
Reciprocity, functoriality and the  $p$ -adic Langlands programme
- 2011 – 2014 **EPSRC postdoctoral fellowship**, £247,241.  
The arithmetic of  $p$ -adic automorphic forms and Galois representations

## Teaching

- Undergraduate course for first years, 'Linear Algebra & Geometry II', King's College London (2020/21)
- Undergraduate course for second and third years, 'Introduction to Number Theory', King's College London (2016/17 – 2019/20)
- Undergraduate course for third and fourth years, 'Group Representation Theory', Imperial College London (January – March 2016)

- Masters course, 'Modular Forms', University of Cambridge (24 lectures, January – March 2014)
- Graduate course, 'Mod  $p$  and  $p$ -adic modular forms', University of Cambridge (24 lectures, January – March 2012).
- Supervisions (small group tutorials) for third year undergraduate courses in mathematics, Trinity College, Cambridge (Galois theory, Number theory, Number fields).
- Assistant for a course given by Prof. Frank Calegari at the Arizona Winter School, March 2013.

## Conferences organised

- 2019 The  $p$ -adic Langlands programme and related topics, King's College London
- 2018 UK–Japan Winter School, Galois Representations and Automorphic Forms, King's College London
- 2016 Automorphic forms: theory and computation, King's College London

## Service and other professional activities

- 2018 – 2021 Postgraduate Research Tutor, Department of Mathematics, King's College London
- 2017 – 2019 Programme Director for Year 3 BSc/MSci Mathematics, King's College London
- 2016 – 2021 Member, Equality & Diversity Committee and Athena SWAN Self-Assessment Team, Department of Mathematics, King's College London
- 2019 – 2021 Admissions committee member, LSGNT Centre for Doctoral Training
- 2011 – 2013 Admissions interviews, Trinity College, Cambridge.
- 2016 – 2021 Organiser, London Number Theory Seminar, King's College London
- 2012 – 2014 Organiser, Number Theory Seminar, University of Cambridge
- Referee for journals including J. Amer. Math. Soc., Invent. Math., Math. Ann., Compos. Math., Duke Math. J., Algebra & Number Theory.
- External examiner for PhDs at Warwick University and the University of Cambridge

## Selected invited talks (2016 – present)

- Paris–Orsay Séminaire Arithmétique et Géométrie Algébrique, 04/2021
- Recent Advances in Modern  $p$ -Adic Geometry (RAMpAGe) Seminar, 12/2020
- UCD Algebra & Number Theory Seminar, Dublin, 11/2020
- Columbia–CUNY–NYU Number Theory Seminar, 10/2020
- Berkeley–Caltech–Stanford Number Theory Seminar, 10/2020
- Global Langlands, Shimura varieties, and shtukas, Bonn, 08/2020 (*cancelled due to COVID-19*)
- PIMS–Germany Summer School on Eigenvarieties, Vancouver, 08/2020 (*cancelled due to COVID-19*)
- Summer School on the Arithmetic of the Langlands Program, Bonn, 05/2020 (*cancelled due to COVID-19*)
- HUJI–BGU Algebraic Geometry & Number Theory Seminar, 05/2020
- Peking Online International Number Theory Seminar, 05/2020
- Harvard Number Theory Seminar, 05/2020
- Journées arithmétiques de LAGA, Paris, 03/2020
- Oxford Number Theory Seminar, 02/2020

- London Number Theory Seminar, 2019
- Hausdorff School on the Emerton-Gee stack and related topics, summer school, Bonn, Germany, 2019
- $p$ -adic modular forms and Galois representations, conference, Sheffield, UK, 2019
- $p$ -adic methods in arithmetic Cardedeu, Spain, 2019
- $p$ -adic Langlands correspondence and Iwasawa theory, conference, Lille, France, 2019
- University of Gothenburg/Chalmers Number Theory Seminar, 2019
- Workshop on Galois Representations, Heidelberg, Germany, 2018
- Number Theory Seminar, University of Warwick, UK, 2018
- Summer School on Modular Forms, workshop, Padova, Italy, 2017
- London Number Theory Seminar, 2016
- Deformation theory, completed cohomology, Leopoldt conjecture and  $\bar{K}$ -theory, workshop, CIRM, Luminy, France, 2016
- London–Paris Number Theory Seminar, UPMC, Paris, France, 2016
- Number Theory Seminar, University of Sheffield, UK, 2016
- Number Theory Seminar, University of Cambridge, UK, 2016
- The  $p$ -adic Langlands program and related topics, conference, Indiana University, USA, 2016

## Publications

1. *Geometric level raising for  $p$ -adic automorphic forms.*  
Compos. Math., 147(2):335–354, 2011.
2. *Level raising and completed cohomology.*  
IMRN, (11):2565–2576, 2011.
3. *Completed cohomology of Shimura curves and a  $p$ -adic Jacquet-Langlands correspondence.*  
Math. Ann., 355(2):729–763, 2013.
4. *Serre weights and Shimura curves.*  
Proc. LMS, 108(6):1471–1500, 2014.
5. *Towards local-global compatibility for Hilbert modular forms of low weight.*  
Algebra & Number Theory, 9(4):957–980, 2015.
6. *Level raising for  $p$ -adic Hilbert modular forms.*  
J. Théor. Nombres Bordeaux, 28(3):621–653, 2016.
7. *Torsion Galois representations over CM fields and Hecke algebras in the derived category.*  
Forum Math. Sigma, 4:e21, 88, 2016. (Joint with J. Thorne)
8. *The dimension of irreducible components, an appendix to Universal eigenvarieties, trianguline Galois representations, and  $p$ -adic Langlands functoriality* by D. Hansen  
J. Reine Angew. Math., 730:60–62, 2017.
9. *Extended eigenvarieties for overconvergent cohomology.*  
Algebra & Number Theory, 13(1):93–158, 2019. (Joint with C. Johansson)
10. *Irreducible components of extended eigenvarieties and interpolating Langlands functoriality.*  
Math. Res. Lett., 26(1):159–201, 2019. (Joint with C. Johansson)
11. *Irreducible components of the eigencurve of finite degree are finite over the weight space.*  
J. Reine Angew. Math., 763:251–269, 2020. (Joint with S. Hattori)
12. *Parallel weight 2 points on Hilbert modular eigenvarieties and the parity conjecture.*

- Forum Math. Sigma, 7:e27, 2019. (Joint with C. Johansson)
13. *Local Langlands correspondence in rigid families.*  
Pacific J. Math., 304(1):65–102, 2020. (Joint with C. Johansson and C. Sorensen)
  14. *Patching and the completed homology of locally symmetric spaces.*  
Accepted to appear in J. Inst. Math. Jussieu. (Joint with T. Gee)
  15. *Adjoint Selmer groups of automorphic Galois representations of unitary type*  
Accepted to appear in J. Eur. Math. Soc. (Joint with J. Thorne)
  16. *Automorphy lifting for residually reducible  $l$ -adic Galois representations, II*  
Compos. Math., 156(11):2399–2422, 2020 (Joint with P. Allen and J. Thorne)
  17. *Monodromy for some rank two Galois representations over CM fields.*  
Doc. Math., 25:2487–2506, 2020 (Joint with P. Allen)
  18. *Symmetric power functoriality for holomorphic modular forms.*  
Accepted to appear in Publ. Math. IHÉS. (Joint with J. Thorne)
  19. *Symmetric power functoriality for holomorphic modular forms, II.*  
Accepted to appear in Publ. Math. IHÉS. (Joint with J. Thorne)

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## Preprints

1. *Potential automorphy over CM fields.*  
193pp, [arxiv.org/abs/1812.09999](https://arxiv.org/abs/1812.09999). (Joint with P. Allen, F. Calegari, A. Caraiani, T. Gee, D. Helm, B. V. Le Hung, P. Scholze, R. Taylor and J. Thorne)