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Adam Keilthy

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Work History

Research and Teaching Roles

- Teaching Fellow in Mathematics, Trinity College Dublin, September 2024-present
- Postdoctoral Researcher, Chalmers Technical University, September 2022-August 2024
    - Supported by Wallenberg Grant, project KAW 2020.0254
    - Lecturer at Gothenburg University, teaching "MMG710 Fourier Analysis".
    - Project Supervisor at Gothenburg University, studying the overlap between number theory and formal verification.
- Lecturer at the University of Bonn, Winter Semester 2021/22
    - Designed and delivered a PhD level lecture course "Multiple zeta values and motivic periods"
- Postdoctoral Researcher, Max Planck Institute for Mathematics Bonn, September 2020-2022
- Stipendiary Lecturer, Hertford College, University of Oxford, September 2019-2020
- Admissions Interviewer, Hertford College, University of Oxford, December 2019
- Tutor, Mathematical Institute, University of Oxford, October 2016-December 2019
- Non-Stipendiary Lecturer, Balliol College, University of Oxford, October-December 2019
- Tutor, Balliol College, University of Oxford, April-May 2019
- Tutor, Somerville College, University of Oxford, January-March 2019
- Non-Stipendiary Lecturer, Balliol College, University of Oxford, October-December 2018
- Teaching assistant, Mathematical Institute, University of Oxford, October 2016-2017
- Teaching assistant, School of Mathematics, Trinity College Dublin, September 2014 - 2016
- Research Intern, University of Minnesota, June-July 2015
- Research Intern, University College Dublin, June-July 2014
- Guest Lecturer, University College Dublin, April 2014, February 2015
- Research Intern, Trinity College Dublin, June-July 2013

My teaching experience ranges across a variety of topics, including Linear Algebra, Continuous Mathematics, Real and Complex Analysis, Graph Theory and Probabilistic Combinatorics, Algebraic Number Theory, Hamiltonian Mechanics, and Introductory Quantum Theory.

Pastoral and Organisational Roles

- Jowett Warden, Balliol College, University of Oxford September 2019-2020
    - Role responsible the for welfare and discipline of students in the Jowett Walk Annex.
    - First response for emergencies, acting as both fire marshal and first aider on site.
- Research Mentor with PROMYS Europe, July-August 2019
- Coordinator of the Oxford Junior Number Theory Seminar, October 2018-May 2019
- Coordinator of the Oxford Kinderseminar, October 2017-May 2018
- LGBTQ+ Officer, Balliol MCR, University of Oxford, October 2017-June 2018
- Quizmaster of the Trinity Mathematical Society, April 2015-April 2016
- Executive member of the Central Societies Committee, April 2015-April 2016
- Education Officer of the Trinity Knitting Society, April 2015-April 2016
- Chairperson of the Trinity Knitting Society, April 2013-April 2015

Publications and Talks

A. Keilthy, M. Raum, *Formal deformations of modular forms and multiple L-values* - arXiv:2404.03519

A. Keilthy, *Relating depth graded and block graded motivic Lie algebras* - submitted to Glasgow Math. Journal - arXiv:2307.08089

V. Dotsenko, A. Keilthy, D. Lyskov, *Reconnectads*, Alg. Comb., Vo. 7 (2024) no. 3, pp. 801-842

S. Charlton, A. Keilthy, *Evaluation of the multiple zeta values $\zeta(2,\ldots,2,4,2,\ldots,2)$ via double zeta values, with applications to period polynomial relations and to multiple t values*, Forum Math. Sigma 2024;12:e46

A. Keilthy, *Generalised quasishuffle algebras and applications to multiple zeta values*, INTEGERS 22 A114 (2022)

A. Keilthy, *Motivic multiple zeta values and the block filtration*, J. Number Theory 238 (Sept. 2022) 883-919

Z. Hamaker, A. Keilthy, R. Patrias, L. Webster, Y. Zhang and S. Zhou, *Shifted Hecke insertion and K-theory of $OG(n, 2n + 1)$*, JCTA 151 (Oct. 2017) 207-240

A. Keilthy, R. Patrias, L. Webster, Y. Zhang, and S. Zhou, *Shifted Hecke insertion and K-theory of $OG(n, 2n + 1)$*, DMTCS proc., FPSAC17 (2017), #14

A. Keilthy, R. Osburn, *Rogers–Ramanujan type identities for alternating knots*, J. Number Theory 161 (2016) 255–280

Short talk at Harder85 Birthday Conference on "Motives and Automorphic Forms", MPIM, 07/03/23

Short talk at Summer school "Motives and Arithmetic Groups", IRMA de Strasbourg, 16/06/22

Speaker in the Strasbourg Algebra and Number Theory Seminar, 15/11/21

Speaker in the Japan-Europe Number Theory Exchange (JENTE) Seminar, 22/06/21

Speaker in the Hamburg Number Theory Seminar, 09/06/21

Invited speaker at Rendez-vous on Special Values and Periods (RSVP) Conference, 21/05/21

Speaker in the Warsaw Number Theory Seminar, 29/06/20

Speaker at ZETAS2018 : Summer school on Zeta functions, polyzeta functions, arithmetical series, and their applications to motives and number theory, Universit'e Savoie Mont Blanc, 25/06/18

Invited Speaker at the Dublin Mathematics Colloquium, 24/01/19

Education

University of Oxford DPhil. in Mathematics, awarded May 2021

> Thesis title: Rational structures on multiple zeta values
>
> Thesis supervisor: Francis Brown

Trinity College Dublin First Class B.A. (93%) in Mathematics, awarded August 2016

Prizes and Awards

- Received an award for exceptional teaching from the Mathematical Institute, University of Oxford, 2018
- Awarded Clarendon Scholarship in conjunction with Foley-Béjar scholarship
- Received the Hamilton Prize 2015
- Received the Lloyd Exhibition award 2015
- Received the Rowe Prize, 2013/2014
- Elected Trinity Foundation Scholar 2014
- Received the St Patrick's Benevolent Society of Toronto prize 2013/2014
- Received the Townsend Memorial Prize, 2012/2013

Skills and Hobbies

- Capable Programmer in C and C++, with a working knowledge of Java and HTML.
- Working knowledge of LaTex, Mathematica, Maple, GP-Pari, and Microsoft Office.
- Qualified First Aider, with St. John's Ambulance Service, June 2019
- Fluent English, conversational French and Irish (B2), basic German (A2), SFI Kurs D Swedish (∼B1)