

School of Mathematical Sciences
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Kevin Allen

Personal

Place of birth Dublin, Ireland
Citizenship Irish

Research Interests

Number Theory, Combinatorics, Knot Theory, Modular Forms, Projective Geometry

Education

- Ph.D. **Mathematics**, University College Dublin, 2025,
Topic: *q-Series and Modularity*.
Advisor: Professor Robert Osburn
- M.Sc. **Mathematical Science**, University College Dublin, 2021,
Thesis: *Semifields, Hyperovals and Cherowitzo's Conjecture*.
Advisor: Dr. John Sheekey
- B.Sc. **Mathematics**, University College Dublin, 2020,
Thesis: *Semifields: A Classification Problem*.
UCEAP, University of California Los Angeles, 2019

Employment

- 9/2025- **Lecturer**, University College Cork, Cork, Ireland.
9/2021 - 5/2025 **Tutor**, University College Dublin, Dublin, Ireland.
9/2019 - 5/2020 **Tutor**, University College Dublin, Dublin, Ireland.

Grants/Awards

- 2021-25 **Research Demonstratorship Scholarship**, University College Dublin, €77,400.
2020 **Casey Medal (awarded to top of undergraduate class)**, University College Dublin.
2018 **B.Sc. Mathematics Stage 3 Scholarship**, University College Dublin, €1,000.
2016 **UCD Entrance Scholar**, University College Dublin.

Publications

3. *Generalized rank deviations for overpartitions (with R. Osburn and M. Storzer)*, submitted.
2. *Unimodal sequences and mixed false theta functions (with R. Osburn)*, Advances in Mathematics, 473 (2025), Paper No. 110293.
1. *On translation hyperovals in semifield planes (with J. Sheekey)*, Des. Codes Cryptogr. **93** (2025), no. 2, 429–442.

Talks Given

- 11/2021 **Speaker at UCD Mathematical Society & UCD PhD Society**,
“Knot Theory and Untangling the Path Ahead”.
- 6/2022 **Short Talks at Nesin Mathematics Village, Workshop on Integer Partitions**,
“Knot Theory and q -Series”.
- 5/2023 **35th Automorphic Forms Workshop**,
“Unimodal sequences, Hecke-type double sums and false theta series”.
- 7/2023 **32èmes Journées Arithmétiques**,
“Unimodal sequences, Hecke-type double sums and false theta series”.
- 6/2024 **Canadian Number Theory Association Meeting**,
“Unimodal sequences and mixed modularity”.

Conferences Attended

- 5/2022 **NSF/CBMS Research Conference: Ramanujan's ranks, Mock Theta Functions, and Beyond**, University of Texas Rio Grande Valley, Texas, USA, May 16-20, 2022.
- 6/2022 **Workshop on Integer Partitions**, Nesin Mathematics Village, Turkey, May 30-June 5, 2022.
- 7/2022 **Ramanujan and Euler: Partitions, Mock Theta Functions, and q -Series**, Online Number Theory Conference and School, July 18-22, 2022 (Online).
- 5/2023 **35th Automorphic Forms Workshop**, LSU, Louisiana, USA, May 22-26, 2023.
- 7/2023 **32èmes Journées Arithmétiques**, Université de Lorraine, France, July 3-7, 2023.
- 6/2024 **Canadian Number Theory Association Meeting**, Fields Institute, Toronto, Canada, June 10-14, 2024.
- 9/2024 **Building Bridges: 6th EU/US Summer School & Workshop on Automorphic Forms and Related Topics (BB6) School and Workshop on Automorphic Forms and Related Topics**, CIRM, France, Sep 2-6, 2024.

Teaching

9/2019 -

UCD: Tutor

- Math 10030 (Maths for Business)
- Math 10200 (Matrix Algebra)
- Math 10210 (Foundations of Mathematics for Computer Science I)
- Math 10350 (Calculus in the Mathematical and Physical Sciences)
- Math 20320 (Quantitative Methods for Business)
- Math 20030 (Linear Algebra 2 for the Mathematical Sciences)
- Math 20060 (Calculus of Several Variables)
- ACM 10060 (Applications of Differential Equations)
- ACM 30030 (Multivariable Calculus for Engineering II)
- MST 30070 (Differential Geometry)