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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. 2021-	**Mathematics**, *University College Dublin*, Topic: *q-Series and Modularity*, Advisor: Associate 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

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

1. *On translation hyperovals in semifield planes (with John Sheekey)*, Des. Codes Cryptogr. **93** (2025), no. 2, 429–442.

2. *Unimodal sequences and mixed false theta functions (with Robert Osburn)*, Advances in Mathematics, 473 (2025), Paper No. 110293.

3. *Generalised rank deviations for overpartitions*, in preparation.

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)