

# Dylan KING

## PERSONAL INFORMATION

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## EDUCATION

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- **2022-present California Institute of Technology**, Pasadena, California, USA
  - PhD in mathematics, advised by David Conlon
- **2021-2022 University of Bristol**, Bristol, United Kingdom
  - Master’s in Science by Research under the supervision of David Ellis (focus on extremal combinatorics)
- **2020-2021 University of Cambridge**, Cambridge, United Kingdom
  - Master’s in Advanced Studies by Part III of the Mathematical Tripos
  - Pass with Distinction
- **2016-2020 Wake Forest University**, Winston-Salem, North Carolina, USA
  - Bachelors of Science in Mathematics, Bachelors of Arts in Computer Science, Minor in Chemistry
  - GPA: 4.0, Graduated May 2020
  - Highest Honors at the Budapest Semesters in Mathematics Program, 2018-19

## PUBLICATIONS

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- Hefty, Z., Horn, P., King, D., & Pfender, F. (2025). Improving  $R(3, k)$  in just two bites. (submitted). arXiv:[2510.19718](https://arxiv.org/abs/2510.19718)
- King, D., Lidický, B., Ouyang, M., Pfender, F., Wang, R., & Xiang, Z. (2025). On Relative Ordered Turán Density. (submitted). arXiv:[2508.05515](https://arxiv.org/abs/2508.05515)
- King, D., Piga, S., Sales, M., & Schülke, B. (2025). On possible uniform Turán densities. (submitted). arXiv:[2504.21220](https://arxiv.org/abs/2504.21220)
- Crawford, N., King, D., & Spiro, S. (2025). Rainbow Erdős–Sós Conjectures. (submitted). arXiv:[2502.00135](https://arxiv.org/abs/2502.00135)
- King, D., Sales, M. & Schülke, B. (2024). Lagrangians are attained as uniform Turán densities. (to appear in Israel Journal of Mathematics). arXiv:[2412.07297](https://arxiv.org/abs/2412.07297)
- Heath, E., King, D., McCourt, G., Sheats, H., & Wisby, J. (2024). Online Ramsey numbers of ordered graphs. (submitted). arXiv:[2409.01917](https://arxiv.org/abs/2409.01917)
- Ellis, D. and King, D. (2023). Lower bounds for the Turán densities of daisies. *Electronic Journal of Combinatorics*, 30 (4). arXiv:[2204.08930](https://arxiv.org/abs/2204.08930)
- Fish, S., King, D., & Miller, S. J. (2020). Extensions of Autocorrelation Inequalities with Applications to Additive Combinatorics. *Bulletin of the Australian Mathematical Society*, 102(3), 451–461. arXiv:[2001.02326](https://arxiv.org/abs/2001.02326)

- Coen, F., Gillman, N., Keleti, T., King, D.A., & Zhu, J. (2021). Large Sets with Small Injective Projections. *Annales Fennici Mathematici*, 46(2), 683–702. arXiv:[1906.06288](#)
- King, D.A, Martinez, T., Miller, S.J., & Sun, C., (2022). Generalizing the Distribution of Missing Sums in Sumsets. *Journal of Number Theory*, 239, 402-444. arXiv:[2005.07981](#)
- Fish, S., King, D.A, Miller, S.J., & Wahlenmayer, C.G. (2019). Crescent Configurations in Normed Spaces. *Integers*, 20, A96. arXiv:[1909.08769](#)
- Fang, S., King, D., Lee, E. B., & Strichartz, R. (2019). Spectral decimation for families of self-similar symmetric Laplacians on the Sierpiński gasket. *Journal of Fractal Geometry*, 7(1), 1–62. arXiv:[1709.02031](#)
- A review of B. Bajnok, *Additive Combinatorics: A Menu of Research Problems*, CRC Press, Boca Raton, FL, 2018, 390 pages; joint with Thomas C. Martinez, Steven J. Miller, and Chenyang Sun. Printed in the December American Mathematical Monthly.

## PRESENTATIONS

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- **2026** Improving  $R(3, k)$  in just two bites (UIC Mathematical Computer Science Seminar)
- **2025** Palettes, Lagrangians, and Uniform Turán Density (Zoom at the discrete math seminars of Louisiana State University, Caltech, University of Victoria, and University of South Carolina, and in-person at Iowa State University and JMM 2026)
- **2025** JMM Special Session on Graphs, Hypergraphs, and Extremal Combinatorics, Which hypergraphs are vanishing daisies?
- **2024** Online Ordered Ramsey Numbers at the UC Irvine Combinatorics & Probability Seminar
- **2024** AMS Fall Southwestern Sectional Special Session on Advances in Extremal Combinatorics, Lagrangians of Palettes
- **2023** AMS Fall Southeastern Sectional Special Session on Extremal and Probabilistic Combinatorics, Ramsey and Turán Properties for Faces of the Hypercube
- **2023** Workshop on Ramsey Theory at UC San Diego, Daisy-free hypergraphs and arithmetic Hilbert cubes
- **2022** Random Structures and Algorithms (RS&A) in Gniezno, Distribution of Missing Sums in Correlated Sumsets

## WORKSHOPS

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- **2025** *Flag algebras and extremal combinatorics* AIM Workshop
- **2025** PCMI Graduate Summer School — *Extremal and Probabilistic Combinatorics*
- **2025** Topological Methods in Combinatorics Summer School at Iowa State University
- **2025,2023** Graduate Research Workshop in Combinatorics (GRWC) at Iowa State University and University of Wyoming, resp.
- **2025** SLMath Introductory Workshop: *Graph Theory: Extremal, Probabilistic and Structural*
- **2025** SLMath Workshop: *Algebraic and Analytic Methods in Combinatorics*
- **2025** BIRS Workshop — *Finite Geometry and Ramsey Theory*
- **2024-2025** *Desert Discrete Math Workshop I, II, and III (DDMW)* (organized by Asaf Ferber and Marcelo Sales)
- **2024** *High-dimensional phenomena in discrete analysis* AIM Workshop

- **2024** Czech Summer School on Discrete Mathematics
- **2024** *Albertson conjecture and related problems* AIM Workshop

## TEACHING

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- **2024** Head Teaching Assistant for Ma1 a (Head TA) and Integrated Math Core at **Caltech**
- **2024** Head Teaching Assistant for Ma1 a (Head TA) and Ma6b at **Caltech**
- **2023** Teaching Assistant for Ma1 a (Head TA) and c: Single Variable Calculus at **Caltech**
- **2022** Teaching Assistant for Ma1 a,b, and c: Single Variable Calculus at **Caltech**
- **2020** Teaching Assistant for MST 214 Multivariable Analysis at **Wake Forest University**
- **2019** Teaching Assistant for MST 317 Complex Analysis at **Wake Forest University**

## HONORS AND AWARDS

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- **2020** Marshall Scholar
- **2019** G.W. Greene Scholar at **Wake Forest University**
- **2018** Barry Goldwater Scholar
- **2018** Raynor Scholar at **Wake Forest University**
- **2016** Reynolds Scholar at **Wake Forest University**