

Arun Soor

Curriculum Vitae

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Education

- 2021–Present **DPHil Mathematics**, *University of Oxford*, Oxford
Advisor: Prof. Konstantin Ardakov. Expected graduation: July 2025.
- 2020–2021 **MMath Mathematics**, *University of Oxford*, Oxford, *Distinction*
Part C essay: Crystal graphs and the representation theory of the symmetric group, advisor Prof. Kevin McGerty
- 2017–2020 **BA Mathematics**, *University of Oxford*, Oxford, First Class

Experience

- 2022–Present **Lecturer II in Mathematics**, *Magdalen College, University of Oxford*, Oxford
I teach around three hours of tutorials in pure mathematics per week to first- and second-year undergraduates.

Publications and pre-prints

Pre-prints

6. **A six-functor formalism for quasi-coherent sheaves and crystals on rigid-analytic varieties**, arXiv:2409.07592, 2024. *Submitted*.
5. **Quasicoherent sheaves for dagger analytic geometry**, arXiv:2311.03101, 2023. *Submitted, under review*.

Publications

4. **Convergence and an explicit formula for the joint moments of the circular Jacobi β -ensemble characteristic polynomial**, joint with T. Assiotis and M. A. Gunes. *Mathematical Physics Analysis and Geometry*, 2022.
3. **On a distinguished family of random variables and Painlevé equations**, joint with T. Assiotis, B. Bedert and M.A. Gunes. *Probability and Mathematical Physics*, 2:613–642, 2022.
2. **Moments of generalized Cauchy random matrices and continuous-Hahn polynomials**, joint with T. Assiotis, B. Bedert and M.A. Gunes. *Nonlinearity*, 34(7):4923–4943, 2021.
1. **Origami-inspired thin-film shape memory alloy devices**, joint with P. Velvaluri, P. Plucinsky, R. Lima de Miranda, R. D. James, and E. Quandt. *Scientific Reports*, 11(1):10988, 2021.

News articles

1. **Origami and the structure of materials**, joint with H. Liu, P. Plucinsky, F. Feng, and R. D. James. SIAM news January/February 2022.

Teaching experience

University of Oxford

- Trinity 2024 **College tutorials** (Magdalen) for M4 Constructive Mathematics, various revision classes.
- Hilary 2024 **College tutorials** (Magdalen) for A5 Topology, M4 Dynamics; **Tutor** for C2.6 Introduction to Schemes.
- Michaelmas 2023 **College tutorials** (Magdalen) for A2 Metric Spaces & Complex Analysis, M4 Geometry.
- Trinity 2023 **College tutorials** (Magdalen) for ASO Group Theory, ASO Multidimensional Analysis & Geometry, M4 Constructive Mathematics, various revision classes.
- Hilary 2023 **College tutorials** (Magdalen) for A5 Topology, M4 Dynamics; **Tutor** for C2.6 Introduction to Schemes.
- Michaelmas 2022 **College tutorials** (Magdalen) for A2 Metric Spaces & Complex Analysis; **Teaching assistant** for B3.1 Galois theory, and for C3.6 Modular Forms.
- Trinity 2022 **College tutorials** (Magdalen) for ASO number theory, revision classes for A2 Metric Spaces & Complex Analysis.
- Hilary 2022 **Teaching assistant** for B3.4 Algebraic Number Theory.
- Michaelmas 2021 **Teaching assistant** for B2.1 Introduction to Representation Theory.

Service

- August 2024 Co-organizer for **Young Researchers In Algebraic Number Theory VI** (Y-RANT VI) conference, Oxford.
- ★ **Undergraduate admissions interviews** for Mathematics at Magdalen College, Oxford (December 2022, December 2023).
 - ★ MAT (Maths Admissions Test) and Interviews Outreach Workshop, St Edmund Hall, University of Oxford (September 2023, September 2024).
- 2020-2021 I was the president of the **Invariants**, Oxford's student maths society.

Invited talks

- June 2024 **A six-functor formalism for analytic \mathcal{D} -modules on rigid-analytic varieties**. Seminario de Geometría No Conmutativa del Atlántico Sur, Universidad de Buenos Aires.
- May 2021 **Origami with conformal and helical symmetry**, SIAM MS21 conference.

Seminars organised

- 2023-present **Junior Number Theory Seminar**, *co-organizer*, University of Oxford.

[Learning seminars](#)

Trinity 2023 **Geometric Langlands Learning Seminar**, *co-organizer*.

Hilary 2023 **Rapoport-Zink Spaces Learning Seminar**, *co-organizer*.

Michaelmas
2022 **Fargues-Fontaine Curve Learning Seminar**, *co-organizer*.

- ★ You can see a list of learning seminar talks I have given, with some notes, on my [website](#).