Arun Soor

Curriculum Vitae

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Education

2021–Present **DPhil Mathematics**, *University of Oxford*, Oxford
Advisor: Prof. Konstantin Ardakov. Thesis title: Topics in derived analytic geometry. Expected graduation: August 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

2022–2025 **Lecturer II in Mathematics**, *Magdalen College, University of Oxford*, Oxford
Tutorials in pure mathematics given 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. *To appear in Israel J. Math.*

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, December 2024).
⋆	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

July 2025	Seminar Darstellungstheorie, U. Wuppertal
June 2025	ETHZ-UZh-Sbg Arithmetic and Geometry Research Group Alpbach 2025 workshop
May 2025	Algebra seminar, U. Oxford
March 2025	GLNT seminar, U. Michigan
March 2025	Geometry seminar, UT Austin
January 2025	BIMSA Algebraic Geometry seminar (online)

June 2024	Seminario de Geometría No Conmutativa del Atlántico Sur (online)
May 2021	SIAM MS21 conference (online)

Seminars organised

2023-2025	**Junior Number Theory Seminar**, *co-organizer*, University of Oxford.

Learning seminars

Hilary 2025	**Diamonds learning seminar**, *co-organizer*.
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.