

Joseph Pollard

Curriculum Vitae

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Employment

Postdoctoral Research Associate

School of Medical Sciences and School of Physics, UNSW Sydney

February 2024–date

Postdoctoral Research Associate

Department of Physics, University of Durham

February 2021–February 2023

IAS Early Career Fellow

Institute for Advanced Study, University of Warwick

October 2020–February 2021

Education

University of Warwick

(2017-2020)

Doctorate

Thesis Title: The Topology and Geometry of Liquid Crystals

University of Warwick

(2016-2017)

MSc in Mathematics of Systems

University of Oxford

(2015-2016)

MSc in Mathematics and Computer Science

University of Oxford

(2012-2015)

BSc in Mathematics and Computer Science

Publications

- [J. Pollard](#) and G.P. Alexander, *Escape into the Third Dimension in Cholesteric Liquid Crystals*, New J. Phys. **26**, 063027, (2024).
- [J. Pollard](#) and G.P. Alexander, *Contact Topology and the Classification of Disclination Lines in Cholesteric Liquid Crystals*, Phys. Rev. Lett. **130**, 228102 (2023).
- [J. Pollard](#) and S.M. Fielding, *Yielding, Shear Banding and Brittle Failure of Amorphous Materials*, Phys. Rev. Research **4**, 043037 (2022).
- J. Eun, [J. Pollard](#), S-J. Kim, T. Machon, and J. Jeong, *Layering Transitions and Metastable Structures of Cholesteric Liquid Crystals in Cylindrical Confinement*, PNAS **118**, e2102926118 (2021).
- [J. Pollard](#) and G.P. Alexander, *Intrinsic geometry and director reconstruction for three-dimensional liquid crystals*, New J. Phys. **23**, 063006 (2021).
- J. Binysh, [J. Pollard](#), and G.P. Alexander, *Geometry of Bend: Singular Lines and Defects in Twist-Bend Nematics*, Phys. Rev. Lett. **125**, 047801 (2020).
- [J. Pollard](#), G. Posnjak, S. Čopar, I. Mušević, and G. P. Alexander, *Point defects, Topological Chirality, and Singularity Theory in Cholesteric Liquid-Crystal Droplets*, Phys. Rev. X **9**, 021004 (2019).

Conferences and Presentations

- *Chiral liquid crystals seen through the lens of contact topology*, Applied Maths Seminar, UNSW, 2024
- *The topological classification of defects in cholesteric liquid crystals*, Soft Matter Seminar, Johns Hopkins University, 2023.
- *The topological classification of defects in cholesteric liquid crystals*, Soft Matter Seminar, University of Bristol, 2022.
- *The topological classification of defects in cholesteric liquid crystals*, LMS-DOS Meeting on Anisotropic Materials, University of Durham, 2022.
- *Geometric frustration in liquid crystals*, Soft Matter Seminar, University of Durham, 2021.
- *The geometry of bend*, Soft Matter Seminar, University of Warwick, 2020.
- *Point defects, Topological Chirality, and Singularity Theory in Cholesteric Liquid-Crystal Droplets*, Soft Matter Seminar, University of Warwick, 2019.
- *Point defects, Topological Chirality, and Singularity Theory in Cholesteric Liquid-Crystal Droplets*, Playing Colloidal Mikado Workshop, University of Oxford, 2018.

Teaching

- Joint supervision of 4th year student project, University of Durham, 2022-2023.
- Supervision of student project, UNSW Sydney, 2024.

References

Professor Richard Morris, UNSW Sydney (r.g.morris@unsw.edu.au)

Professor Suzanne Fielding, University of Durham (suzanne.fielding@durham.ac.uk)

Dr Gareth Alexander, University of Warwick (g.p.alexander@warwick.ac.uk)