

Dr. Ellen Jolley

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Research Positions

- From Dec 2026 **Hooke Fellow**, Mathematical Institute, University of Oxford
- 2024 - 2026 **Research Fellow**, Mathematics Institute, University of Warwick
Shape-transforming active microfluidics, Prof Tom Montenegro-Johnson
- 2024 **LMS Early Career Fellow**, Mathematical Institute, University of Oxford
Fluid-cell interactions in regenerative medicine, Prof Sarah Waters

Education

- 2019 - 2023 **PhD** Mathematics, University College London
On Impacts, Rebounds and Icing on Air Vehicles, Prof Frank Smith
- 2015-2019 **BA MSci** Mathematics and Astrophysics, Christ's College, Cambridge. *Class I.*

Publications

- [1] E. M. Jolley and T. D. Montenegro-Johnson. "An asymptotic description of confined hydrogel swelling." *Submitted* (2026).
- [2] E. M. Jolley, J. M. Oliver, and S. L. Waters. "A model viscoelastic cell translating in Newtonian tube flow." *Preprint available on request*. (2026).
- [3] E. M. Jolley, J. M. Oliver, and S. L. Waters. "A viscoelastic droplet with high viscosity in oscillating flow". *Preprint available on request*. (2026).
- [4] E. M. Jolley, T. D. Dang, and F. T. Smith. "Melting of wall-mounted ice in shear flow." *Proc. Royal Soc. A* 480.2286 (2024). <https://doi.org/10.1098/rspa.2023.0688>.
- [5] E. M. Jolley and F. T. Smith. "Free movement of a near-wall particle in fluid of comparable density." *Physics of Fluids* 36.10 (2024). <https://doi.org/10.1063/5.0229134>.
- [6] E. M. Jolley and F. T. Smith. "Interactions between a heavy particle, air, and a layer of liquid." *Physics of Fluids* 35.4 (2023). <https://doi.org/10.1063/5.0145552>.
- [7] F. T. Smith, E. M. Jolley, and R. A. Palmer. "On modelling fluid/body interactions, impacts and lift-offs." *Acta Mechanica Sinica* 39.5 (2023). <https://doi.org/10.1007/s10409-023-23019-x>.
- [8] E. M. Jolley and F. T. Smith. "A heavy body translating in a boundary layer: 'crash', 'fly away' and 'bouncing' responses." *J. Fluid Mech.* 936.A37 (2022). <https://doi.org/10.1017/jfm.2022.93>.
- [9] E. M. Jolley, R. A. Palmer, and F. T. Smith. "Particle movement in a boundary layer." *J. Eng. Math.* 128.6 (2021). <https://doi.org/10.1007/s10665-021-10121-7>.

Awards and Funding

- 2026 **Drapers Non-Stipendiary Junior Research Fellowship**, St Anne's College, Oxford
- 2024 **LMS Early Career Fellowship** (£10000 independent research award)
QJMAM Fund (travel grant)
LMS Early Career Travel Grant
- 2023 **G-Research Travel Grant**
- 2022 **Corte Studentship** (UCL academic prize)
- 2021 **Lighthull Fund Scholarship** (UCL academic prize)

Selected Presentations

* = invited

- 2026 **JFM Webinar**, A Spotlight on Women in Fluid Dynamics in the UK*
Engineering Maths Seminar, University of Bristol, UK*
- 2025 **ITG Lunch**, University of Cambridge, UK*
Mathematical Biology Seminar, UCL, UK*
New Trends in Mathematics and Life Sciences Workshop, University of Glasgow, UK*
Physical Applied Maths Seminar, University of Manchester, UK*
EFDC2, University College, Dublin, Ireland
BAMC, University of Exeter, UK
- 2024 **APS DFD**, Salt Lake City, USA
ICTAM, Daegu, South Korea*

Teaching

- 2020-2024 **UCL School of Management Teaching Assistant**
Marking coursework for undergraduate mathematics modules for students of BSc Management Science, including modules on calculus and probability, and computational coursework in Java
- 2019-2023 **UCL Department of Mathematics Teaching Assistant**
Tutorials for various undergraduate modules on applied mathematics topics, including Applied Mathematics (first year), Fluid Mechanics (second year) and Methods 3 (second year). Practical computing classes in MATLAB for fourth-year undergraduate students taking Computational and Simulation Methods.

Other

- 2020- Writer and editor of numerous articles for *Chalkdust* magazine
- 2022 Co-organiser of Early Career Researchers in Mathematics Conference at UCL
- 2025 Postdoc Rep on Early Career Committee at Warwick Mathematics Institute
- 2025 Supervisor of four summer project students (one group project + one single student)
- 2025 Co-organiser of Hydrogel Dynamics minisymposium at BAMC in Exeter
- 2025 Co-organiser of Soft Matter Lunch (joint seminar between maths and physics) at Warwick