Catherine KAMAL Ph.D, MSci.

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Employment

01/09/24–todate	**Proleptic Lectureship in Applied Mathematics** *Department of Mathematics, University College London*
01/04/24–todate	**Royal Society Dorothy Hodgkin Fellow**, *Department of Engineering, University of Cambridge* (until 31/08/2024), transferred to *Department of Mathematics, University College London* (01/09/24 to date)
01/04/24–31/08/24	**Supernumerary Fellow**, *Pembroke College , University of Cambridge*
01/10/21–01/04/24	**Stokes Research Fellow**, *Pembroke College, University of Cambridge*
15/08/17–30/08/21	**Postdoc on ERC project FLEXNANOFLOW**, *School of Engineering and Material Science, Queen Mary University of London* ***Supervisor***: Dr. Lorenzo Botto

Education

09/13–26/09/17	**Ph.D. in Mathematics,** *School of Mathematics, University of Bristol* ***Supervisor***: Prof. Jens Eggers
2008–12	**MSci. Mathematics, 1st Class Honours,** *University of Bristol*

Awards

01/04/24	**Dorothy Hodgkin Fellowship, Royal Society** • A 8-year fellowship (worth £1.67 million) towards building an independent research team.
01/10/21	**Stokes Research Fellowship, Pembroke College, University of Cambridge** • A 3-year senior research fellowship in mathematical and physical science.
21/11/16	**American Physical Society Division of Fluid Dynamics (APS-DFD) travel grant** • Awarded $1000 to present at this leading meeting in Fluid Dynamics.
09/06/14	**Best-two minute talk** • University of Bristol (1st of 50 students).
17/04/14	**Winner of best poster competition** • Graduate and Early Career category in the London's Mathematical Society It All Adds Up: Women in Mathematical Science (1st of 50 posters).
06/07/12	**Peregrine Prize for best undergraduate project** • Best undergraduate project out of 200 students.

Training/Summer Schools

07/2024 **Storytelling for Researchers**, *Royal Society, London.*
07/2016 Delegate at **the 22nd CISM-ITUAM International Summer School: Biological and Bio-inspired Fluid Mechanics,** *Udine, Italy.*
08/2015 Delegate at **Complex Motion in Fluids Summer School,** *DTU, Copenhagen, Denmark.*

Teaching

2022-2024	**Supervisor in Methods and Vector Calculus, Mathematics** *University of Cambridge*
2022	**Supervisor for the STEM SMART programme** *University of Cambridge* Academics from the University of Cambridge supervise A-level students in STEM subjects.
2013-2016	**Applied Mathematics Tutor and Marker** *University of Bristol*
06/10-07/10	**Student Associate Scheme** *Gordano's Secondary School, Bristol* Taught Mathematics and arranged science and mathematics day for years 7-9.

Publications

ORCID number: https://orcid.org/0000-0003-2813-0619.

*My early publications are under my maiden name C. Lamstaes.

- **C. Kamal**, L. Botto (2024) *Flow and rheology of suspensions of two-dimensional cylindrical or anisotropic particles with Navier slips* Phys. Rev. Fluids. **7**, 074102
- **C. Kamal**, L. Botto (2023) *The effect of Navier slip on the rheology of a dilute two-dimensional suspension of plate-like particles* J. Fluid Mech. **972**, A1-1-27
- **C. Kamal**, E. Lauga (2023) *Resistive-force theory of slender bodies in viscosity gradients* J. Fluid Mech. **963** A24-1-29
- A. Agrawal, S. Gravelle, **C. Kamal**, L. Botto (2022) *Viscous peeling of a nanosheet* Soft Matter, **6**, 084192-1-21.
- G. Salussolia, **C. Kamal**, J. Stafford, N. Pugno, L. Botto (2022) *Simulation of interacting elastic sheets in shear flow: Insights into buckling, sliding, and reassembly of graphene nanosheets in sheared liquids* Phys. Fluids., **34**, 053311-1-14.
- **C. Kamal**, S. Gravelle, L. Botto (2021) *Alignment of a flexible platelike particle in shear flow: Effect of surface slip and edges* Phys. Rev. Fluids., **6**, 084192-1-21.
- S. Gravelle, **C. Kamal**, and L. Botto (2021) *Violations of Jeffery's theory in the dynamics of nanographene in shear flow* Phys. Rev. Fluids. **6**, 034303-1-12.
- **C. Kamal**, S. Gravelle, L. Botto. (2021) *Effect of hydrodynamic slip on the rotational dynamics of a thin Brownian platelet in shear flow* J. Fluid Mech. **986**, A1-1-31.
- T.S. Chan, **C. Kamal**, J. H. Snoeijer, J. E. Sprittles, J. Eggers (2020) *Cox-Voinov theory with slip* J. Fluid Mech., **900**, A8-1-12.
- **C. Kamal**, S. Gravelle, L. Botto (2020) *Hydrodynamic slip can align thin nanoplatelets in shear flow.* Nat. Comm., **11**, 1-10.
- S. Gravelle, **C. Kamal**, and L. Botto (2020) *Liquid exfoliation of multilayer graphene in sheared solvents: A molecular dynamics investigation.* J. Chem. Phys. **152**, 104701-08. (Special edition for 2D Materials).
- **C. Kamal**, J. E. Sprittles, J. H. Snoeijer, & J. Eggers (2018). *Dynamic drying transition via free-surface cusps. J. Fluid Mech.* ***858****, 760-786.*
- **C. Lamstaes** & J. Eggers (2016) *Arrested bubble rise in a narrow tube.* J. Stat. Phys. **167**, 656-682. (Special edition for the late Leo Kadanoff).
- **C. Lamstaes** & J. Eggers (2013) *Blunting of conical tips by surface diffusion.* Phys. Rev. E. **87** 062408-062415.

Conference proceedings and Invited talks

21/06/24	**Speaker at ECCo 2024** *UCL* **Title:** *Modelling flow and rheology of carbon nanoparticles*
18/06/24	**Speaker at UK Fluid Network Joint Special Interest Meeting** *UCL* **Title:** *Nanoscale to macroscale: modelling flow and rheology of carbon nanoparticles.*
23/05/24	**Speaker at EuroMec Colloquium on Nonlinear Dynamics at Zero Reynolds Number** *Imperial College London* **Title:** *Slender filaments in inhomogeneous environments: orientation, drift, control.*
12/05/23	**Invited Speaker at Fluid Dynamics Seminar** *Imperial College London* **Title:** *The microhydrodynamics of graphene nanoplatelets: modelling the 'unseen'.*
02/12/22	**Invited Speaker at Applied Mathematics Seminar,** *University of Warwick* **Title:** *The microhydrodynamics of ultra-thin nanoparticles: modelling to predict the 'unseen'.*
25/02/22	**Invited Speaker at DAMTP Friday Fluids,** *University of Cambridge* **Title:** *Controlling the orientation of a settling filament via viscosity gradients.*
13/09/22	**Speaker at *13th European Fluid Mechanics Conference,*** *Athens, Greece* **Title:** *Slender filament in viscosity gradients: drag, orientation, drift, control.*
12/10/21	**Invited Speaker at DAMTP Statistical Physics and Soft Matter Seminar,** *University of Cambridge* **Title:** *The flow and rheology of graphene nanoparticles.*
15/03/21	**Speaker at American Physical Society March Meeting 2021**, *Virtual meeting* **Title:** *Modelling flow and rheology of graphene.*
06/05/21	**Invited Speaker at Fluids and Materials Seminar,** *University of Bristol* **Title:** *The flow and rheology of graphene: modelling to predict the 'unseen'.*
23/11/20	**Speaker at *73st annual meeting of the APS-DFD***, *Chicago, USA* **Title:** *Stable alignment of a flexible sheet-like particle in shear flow.*
12/12/19	**Invited Speaker at East London Science School,** *London* **Title:** *Predicting the unknown.*
23/11/19	**Speaker at *72st annual meeting of the American Physical Society Division of Fluid Dynamics (APS-DFD)***, *Seattle, USA.* **Title:** *Nanoplatelets attain a stable orientation in a shear flow: an investigation on the role of Brownian fluctuations.*
19/11/18	**Speaker at *71st annual meeting of the APS-DFD***, *Atlanta, USA* **Title:** *Graphene nanoplatelets attain a stable orientation in a shear flow.*
13/09/18	**Speaker at *12th European Fluid Mechanics Conference,*** *Vienna, Austria* **Title:** *Leading order hydrodynamic model for the deformation of ultra-flexible 2D nanomaterial.*
02/02/17	**Invited seminar speaker at *the BP Institute***, *University of Cambridge* **Title:** *Arrested bubble rise in a narrow tube.*
21/11/16	**Speaker at *69th annual meeting of the APS-DFD***, *Portland, USA* **Title:** *Arrested bubble rise in a narrow tube.*
6/04/16	**Speaker at *British Applied Mathematics Colloquium (BAMC)***, *University of Oxford* **Title:** *Boundary Integral Methods for moving contact line.*