Jingbang Liu

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About me

I'm currently postdoc at the Department of Mathematics, University of Oslo, within the group of Prof. Andreas Carlson.

My research interest lies broadly in the area of *fluid dynamics* and *rare events theory*, with a special focus on *fluctuating hydrodynamics* and *atomistic simulations*.

Experience

University of Oslo — Oslo, NO
Postdoc — 2023–present

- Modelling of cell membrane folding

Education

University of Warwick — Coventry, UK
Ph.D. in Mathematics — 2019–2023

- Fully funded as part of EPSRC CDT in Modelling of Heterogeneous Systems
- Project: "Fluctuating hydrodynamics of nano scale thin films"
- Supervisors: Prof. James E. Sprittles, Prof. Duncan A. Lockerby

University of Oxford — Oxford, UK
M.Sc. Mathematical Modelling and Scientific Computing, Merit — 2018–2019

- Thesis: "Dynamical system approaches to El Niño southern oscillation"
- Supervisors: Prof. Irene Moroz, Dr. Hannah Christensen

University of Manchester — Manchester, UK
B.Sc. Mathematics, First class — 2016–2018

- Final year project: "Thermo-elastic deformation in fibre-reinforced composites"
- Supervisor: Dr. Gareth W. Jones

Shandong University — Jinan, PRC
B.Sc. Mathematics and Applied Mathematics (2+2), 81.71/100 — 2014–2018

Teaching

Undergraduate Supervision at University of Warwick

- Co-supervised Tom Stopford on 4th year project: "Numerical simulation of stochastic thin film equation", 2022-2023.

Teaching Assistant at University of Warwick

- MA4J1 Continuum Mechanics, 2022
- MA4L0 Advanced Topics in Fluids, 2022
- MA261 Differential Equations: Modelling and Numerics, 2022
- MA4J1 Continuum Mechanics, 2021

Contributed talks

- Warwick Applied Mathematics Seminar, June 2023, Warwick
- British Applied Mathematics Colloquium (BAMC2023), April 2023, Bristol
- 14th Euroupean Fluid Mechanics Conference (EFMC14), Sept. 2022, Athens
- Hetsys Summer Conference, July 2022, Warwick
- Workshop on Micro/Nano/Interfacial Flow, May 2022, Warwick
- British Applied Mathematics Colloquium (BAMC2022), April 2022, Loughborough
- Solids, Plasma, Fluids Theme Hetsys Meeting[1], Feb. 2022, Warwick

Online talks

Cassyni talk: Modelling bounded nanoscale thin films

– doi.org/10.52843/cassyni.wb3wg4

Skills

- **Computing:** Fortran, Python, LAMMPS, MATLAB, Parallel computing, High performance computing
- **Languages:** Chinese (native), English (fluent).

Publications in preparation

[1] **J. Liu**, D. A. Lockerby, J. E. Sprittles, and T. Grafke, "Adaptive multilevel splitting for rare rupture of nanoscale thin films", in preparation.

[2] **J. Liu**, J. E. Sprittles, and T. Grafke, "Mean first passage times and eyring-kramers formula for fluctuating hydrodynamics", in preparation.

Publications

[3] **J. Liu**, C. Zhao, D. A. Lockerby, and J. E. Sprittles, "Thermal capillary waves on bounded nanoscale thin films", *Physical Review E*, vol. 107, no. 1, p. 015 105, Jan. 2023, ISSN: 2470-0045, 2470-0053.

[4] J. E. Sprittles, **J. Liu**, D. A. Lockerby, and T. Grafke, "Rogue nanowaves: A route to film rupture", *Physical Review Fluids*, vol. 8, no. 9, p. L092001, Sep. 2023, ISSN: 2469-990X.

[5] C. Zhao, **J. Liu**, D. A. Lockerby, and J. E. Sprittles, "Fluctuation-driven dynamics in nanoscale thin-film flows: Physical insights from numerical investigations", *Physical Review Fluids*, vol. 7, no. 2, p. 024 203, Feb. 2022, ISSN: 2469-990X.

References

Professor James E. Sprittles
Mathematics Institute, The University of Warwick, UK
J.E.Sprittles@warwick.ac.uk

Professor Duncan A. Lockerby
School of Engineering, The University of Warwick, UK
D.Lockerby@warwick.ac.uk

[1] Participated in organising.