

# JINGMIN XIA

College of Meteorology and Oceanography, National University of Defense Technology, China

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## EDUCATION

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**College of Meteorology and Oceanography, National University of Defense Technology**  
Lecturer 10/2021 –  
**Mathematical Institute, University of Oxford** 10/2017 – 07/2021  
D.Phil. in EPSRC Centre for Doctoral Training in Partial Differential Equations  
Thesis: Computational and Analytical Aspects of Energy Minimisation Problems in Cholesteric, Ferronematic and Smectic Liquid Crystals  
Supervisor: Prof. Patrick E. Farrell  
**School of Mathematics, University of Warwick** 10/2015 – 06/2016  
Visiting undergraduate student. Grade: 72.63% (first class)  
Supervisor: Prof. Colin Sparrow  
**College of Science, National University of Defense Technology** 09/2012 – 07/2016  
Bachelor of Science, Applied Mathematics. Grade: 88.7/100 (top student)  
Thesis: CPR Method and its Applications in Traffic Flow  
Supervisor: Prof. Songhe Song

## PUBLICATIONS

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**J. Xia** and P. E. Farrell. *Variational and numerical analysis of a Q-tensor model for smectic-A liquid crystals*, to appear, 2021.

J. Dalby, P. E. Farrell, A. Majumdar and **J. Xia**. *One-dimensional ferronematics in a channel: order reconstruction, bifurcations and multistability*, submitted, [arxiv:abs/2102.06347](https://arxiv.org/abs/2102.06347), 2021.

**J. Xia**, S. MacLachlan, P. E. Farrell and T. J. Atherton. *Structural landscapes in geometrically frustrated smectics*, Physical Review Letters, [126](https://doi.org/10.1126/science.126.177801), 177801, 2021, pp.1-6.

**J. Xia**, P. E. Farrell and F. Wechsung. *Augmented Lagrangian preconditioners for Oseen–Frank models in nematic and cholesteric liquid crystals*, BIT Numerical Mathematics, [doi:10.1007/s10543-020-00838-9](https://doi.org/10.1007/s10543-020-00838-9), 2021, pp.1-38.

**J. Xia**, P. E. Farrell and S. G. P. Castro. *Nonlinear bifurcation analysis of stiffener profiles via deflation techniques*, Thin-Walled Structures, 149 (2020), pp. 1-11, [10.1016/j.tws.2020.106662](https://doi.org/10.1016/j.tws.2020.106662).

M. Song, X. Qian, H. Zhang, **J. Xia** and S. Song, *Two kinds of new energy-preserving schemes for the coupled nonlinear Schrödinger equations*, Communications in Computational Physics, 25 (4) (2019), pp. 1127–1143, [10.4208/cicp.OA-2017-0212](https://doi.org/10.4208/cicp.OA-2017-0212).

**J. Xia**, Z. Xu and D. Hu. *Flocking in a two-agent system with processing delay*, Mathematics in Practice and Theory (Chinese), 18 (2016), pp. 264–270.

**J. Xia**, J. Sun, T. Fang, X. Zhang and J. Fang. *Linear optical properties of gold colloid*, Materials Science, 21 (2015). 10.5755/j01.ms.21.4.9558.

## RESEARCH EXPERIENCE

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**Implementation and Bifurcation Analysis of Saint Venant–Kirchhoff Hyperelastic Models for Aircraft Stiffeners** 06/2018 – 09/2018  
PDE CDT Mini-Project 2  
Supervisor: Prof. Patrick Farrell

**Construction, Implementation and Analysis of Variational Integration Schemes for the Wave Equation** *01/2018 - 04/2018*

PDE CDT Mini-Project 1

Supervisor: Prof. Sina Ober-Blöbaum

**Flocking in a Two-Agent System with Processing Delay** *2015*

National Innovation Projects for Undergraduate Students

Supervisor: Prof. Xiao Wang

**Linear Optical Properties of Gold Colloid** *2014*

Student Research Assistant

Supervisor: Prof. Jingyue Fang

## AWARDS AND COMPETITIONS

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**The Keble Association Grant 2019-20** *12/2019*

Awarded: Study Awards

**National Mathematical Contest in Modeling for Graduates, China** *12/2016*

Awarded: Second Prize

**Mathematical Contest in Modeling (MCM/ICM), USA** *02/2014*

Awarded: Honorable Mention

**Mathematical Contest in Modeling for Undergraduates in Hunan Province, China** *2014*

Awarded: Third Prize

## TEACHING

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**MT 2019:** Numerical Solution of Differential Equations I

**MT 2019:** Marking the Math Admission Test 2019

**HT 2020:** Numerical Solution of Differential Equations II

**HT 2020:** Tutoring the collection (Numerical Solution of Differential Equations) in Lincoln College

## COMPUTER SKILLS

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**Modeling & Analysis**  
**Software & Tools**

Python, Firedrake, Mathematica, Matlab  
L<sup>A</sup>T<sub>E</sub>X, ParaView, Git